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VOL. XLVII.

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TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. XLVII.

FOR THE YEAR 1905.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

EDITED BY
AMAND ROUTH, M.D., SENIOR SECRETARY,
AND
HERBERT R. SPENCER, M.D.

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1892 Turner, Sir William, M.B., F.R.C.S., F.R.S., Principal of the University of Edinburgh; 6, Eton terrace, Edinburgh.

1904 Williams, Sir John, Bart., K.C.V.O., M.D., F.R.C.P., Physician-Accoucheur to H.R.H. Princess Beatrice, Princess Henry of Battenberg; Consulting Obstetric Physician to University College Hospital; Plâs Llanstephan, Carmarthenshire. *Council*, 1875-6, 1892, 1894. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880-2. *Board Exam. Midwives*, 1881-2; *Chairman*, 1884-6. *Pres.* 1887-8. *Trans.* 12. *Trustee.*

FOREIGN SUBJECTS.

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1899 Budin, P., M.D., Professor, 4, Avenue Hoche, Paris. *Trans.* 1.

1895 Gusserow, Professor, Berlin.

1866 Lazarewitch, J., M.D., Professor Emeritus and Physician to the Maximilian Hospital; Spaskaja, 2, St. Petersburg. *Trans.* 3.

1899 Martin, A. E., M.D., Professor of Obstetrics and Gynæcology, Greifswald. *Trans.* 1.

1899 Olshausen, R. M., Professor, N. Artilleriestrasse 19, Berlin.

1899 Pinard, A., Professor, 10, Rue Cambacérés, Paris.

1904 Pozzi, Samuel, M.D., 47, Avenue d'Iéna, Paris.

1895 von Winckel, Professor, Sonnenstrasse 16a, Munich.

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1905

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1890† Ackerley, Richard, M.B., B.S.Oxon., Croft House, The Hill, Surbiton.

1891 Adams, Charles Edmund, M.R.C.S., 227, Gipsy road, West Norwood, S.E. *Council*, 1901.

1884*†Adams, Thomas Rutherford, M.D., 119, North End, West Croydon. *Council*, 1894-7.

1890 Addinsell, Augustus W., M.B., C.M.Edin., M.R.C.P., Pathologist to the Chelsea Hospital for Women, 10, Curzon street, W. *Council*, 1898-1900. *Trans.* 1.

1903 Aldrich-Blake, Louisa Brandrath, M.D., M.S.Lond., 17, Nottingham place, W.

1883*†Allan, Robert John, L.R.C.P.Ed., The Bungalow, Dulwich hill, Sydney, New South Wales.

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1875* Anderson, John Ford, M.D., C.M., 41, Belsize park, N.W. *Council*, 1882, 1898-9.

1903 Anderson, Louisa Garrett, M.D., B.S.Lond., 114a, Harley street, W.

1899 Andrews, E. Collingwood, M.A., M.D.Cantab., 110, Finchley road, South Hampstead, N.W.

1899 Andrews, Henry Russell, M.D., M.R.C.P.Lond., 7, Wimpole street, W. *Council*, 1905–6. *Trans.* 2.

1870*†Appleton, Robert Carlisle, M.R.C.S., The Bar House, Beverley.

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1871 Argles, Frank, L.R.C.P.Ed., Hermon Lodge, Wanstead, Essex, N.E. *Council*, 1886-7.

1898† Auden, George A., M.D., B.C.Cantab., 54, Bootham, York.

1887 Bailey, Henry Frederick, M.R.C.S., The Hollies, Lee terrace, Lee, S.E.

1869* Bantock, George Granville, M.D., Consulting Surgeon to the Samaritan Free Hospital; 14, Upper Hamilton terrace, N.W. *Council*, 1874-6. *Trans.* 2.

1886*†Barbour, A. H. Freeland, M.D.Edin., Lecturer on Midwifery and Diseases of Women, Edinburgh Medical School, 4, Charlotte square, Edinburgh. *Council*, 1898-1901. *Vice-Pres.* 1903–5.

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1892 Beauchamp, Sydney, M.B., B.C.Cantab., 8, William street, Lowndes square, S.W. *Council*, 1904.

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1901 Bell, Robert Hamilton, M.A., M.B., B.C.Cantab., Physician to Out-patients, Samaritan Hospital; 27, Seymour street, Portman square, W. *Trans.* 2.

1889† Benson, Matthew, M.D.Brux., Wyndholme, Wigan.

1894 Berkeley, Comyns, B.A., M.B., B.C.Cantab., Physician to Out-patients to Chelsea Hospital for Women; 53, Wimpole street, W. *Council*, 1902-3.

1883† Bertolacci, J. Hewetson, L.S.A., Elstead, Godalming, Surrey.

1889† Best, William James, M.R.C.S., 1, Cambridge terrace, Dover.

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1902† Boardman, Edith, M.D.Brux., Hyderabad, Deccan, India.

1894† Bodilly, Reginald Thomas H., L.R.C.P.Lond., Woodbury, High road, South Woodford.

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1886† Boustead, Robinson, M.D., B.C. Cantab., Lieutenant-Colonel, Indian Medical Service; c/o Messrs. H. S. King and Co., 45, Pall Mall, S.W.

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1899† Bowring, Walter Andrew, F.R.C.S.Eng., The Pines, Furze Hill, Brighton.

1884* Boxall, Robert, M.D.Cantab., Lecturer on Midwifery and Diseases of Women at the Middlesex Hospital; 40, Portland place, W. *Council*, 1888-90, 1894-5, 1899-1901. *Board Exam. Midwives*, 1891-3. *Hon. Lib.* 1902–3. *Hon. Sec.*, 1904-6. *Trans.* 13.

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1877† Burd, Edward, M.D., M.C., Senior Physician to the Salop Infirmary; Newport House, Shrewsbury. *Council*, 1886-7.

1894 Burt, Robert Francis, M.B., C.M.Edin., 76, Stapleton Hall road, Stroud Green, N.

1878 Butler-Smythe, Albert Charles, F.R.C.S.Ed., Surgeon to Out-patients, Samaritan Free Hospital; 76, Brook street, Grosvenor square, W. *Council*, 1889-91, 1904. *Vice-Pres.* 1905–6.

1887* Buxton, Dudley W., M.D.Lond., 82, Mortimer street, Cavendish square, W.

1886† Byers, John W., M.A., M.D., M.A.O. (Hon. Causâ), Professor of Midwifery and Diseases of Women and Children at Queen's College, and Physician for Diseases of Women to the Royal Hospital, Belfast; Dreenagh House, Lower crescent, Belfast. *Vice-Pres.* 1899-1902.

1891 Calthrop, Lionel C. Everard, M.B.Durh., c/o H. Calthrop, Esq., Messrs. Child and Co., 1, Fleet street, E.C.

1887† Cameron, James Chalmers, M.D., Professor of Midwifery and Diseases of Infancy, McGill University; 941, Dorchester street, Montreal.

1887† Cameron, Murdoch, M.D.Glas., Regius Professor of Midwifery in the University of Glasgow, 7, Newton terrace, Charing Cross, Glasgow. *Council*, 1903–5.

1903† Cameron, Samuel James Murdoch, M.B., Ch.B.Glasg., 13, Sandyford place, Glasgow, W.

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1867*†Charles, T. Edmondston, M.D., F.R.C.P., 72, Via di San Niccolo da Tolentino, Rome. *Council*, 1882-4.

1874*†Charlesworth, James, M.D., Physician to the North Staffordshire Infirmary; 25, Birch terrace, Hanley, Staffordshire.

1897† Chinery, Edward Fluder, F.R.C.S.Edin., Monmouth House, Lymington, Hants.

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1897† Clark, William Gladstone, M.A.Cantab., F.R.C.S.Eng., Civil Service Club, Capetown.

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1903† Clayton, John Hazelwood, M.B.Lond., 16, Hagley road, Edgbaston, Birmingham.

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1905† Cohen, Rachel, M.B.Calc., F.R.C.S.I., 6, Pollock street, Calcutta, India.

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1888 Cooper, Peter, L.R.C.P.Lond., Stainton Lodge, 35, Shooter's Hill road, Blackheath, S.E.

1875*†Cordes, Aug., M.D., M.R.C.P., Consulting Accoucheur to the "Miséricorde;" Privat Docent for Midwifery at the University of Geneva; 12, Rue Bellot, Geneva. *Trans.* 1.

1883 Corner, Cursham, L.S.A., 113, Mile End road, E.

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1893 Cripps, William Harrison, F.R.C.S., Surgeon to St. Bartholomew's Hospital; 2, Stratford place, W. *Trans.* 2.

1889† Croft, Edward Octavius, M.D.Durh., Hon. Surgeon to the Hospital for Women and Children; Hon. Demonstrator of Obstetrics to the Yorkshire College, Leeds; 33, Park square, Leeds. *Trans.* 1.

1881*†Cronk, Herbert George, M.B.Cantab., Repton, near Burton-on-Trent.

1893 Crosby, Herbert Thomas, M.A., M.B., B.C.Cantab., 19, Gordon square, W.C.

1895 Cross, Ernest W., L.R.C.P.Lond., The Limes, Wallwood park, Leytonstone.

1886*†Cross, William Joseph, M.B., Horsham, Victoria, Australia.

1898† Cullen, Thomas, M.D.Toronto, Johns Hopkins Hospital, Baltimore, U S.A.

1875* Cullingworth, Charles James, M.D., D.C.L., LL.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; 14, Manchester square, W. *Council*, 1883-5, 1891-3, 1904-6. *Vice-Pres.* 1886-8. *Board Exam. Midwives*, 1889-91. *Chairman*, 1895-6. *Pres.* 1897-8. *Trans.* 14.

Elected

1905 Currie, George Burnett, M.D.Aber., St. James's avenue, Ealing, W.

1889*†Cursetji, Jehángir J., M.D.Brux., 77A, Gowalia Junk road, Bombay.

1894 Cutler, Lennard, L.R.C.P.Lond., 1, Kensington Gate, Kensington, W. *Trans.* 1.

1885 Dakin, William Radford, M.D., B.S., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; 8, Grosvenor street, W., *Council*, 1889-91. *Hon. Lib.* 1892-3. *Hon. Sec.* 1894-7. *Vice-Pres.* 1898-1901. *Chairman*, 1901–4. *Trans.* 3. *Pres.* 1905–6.

1868 Daly, Frederick Henry, M.D., 185, Amhurst road, Hackney Downs, N.E. *Council*, 1877-9. *Vice-Pres.* 1883-5. *Trans.* 2.

1901 Daly, Frederick James Purcell, L.R.C.P.Lond., 188, Upper Clapton road, N.E.

1904† Das, Kedernath, L.M.S., M.B.Cal., M.D.Madras, Campbell Hospital, Calcutta.

1893 Dauber, John Henry, M.A.Oxon., M.B., B.Ch., Physician to the Hospital for Women, Soho square; 29, Charles street, Berkeley square, W.

1892† Davis, Robert, M.R.C.S., Darrickwood, Orpington, Kent.

1877 Davson, Smith Houston, M.D., Campden villa, 203, Maida vale, W. *Council*, 1889-91.

1891 Dawson, Ernest Rumley, L.R.C.P.Lond., 4, Grange Park road, Leyton, E. *Council*, 1904-6. *Trans.* 1.

1889 Des Vœux, Harold A., M.D.Brux., 214, Buckingham gate, S.W. *Council*, 1896-8.

1894 Dickinson, Thomas Vincent, M.D.Lond., M.R.C.P., Physician to the Italian Hospital, Queen square; 33, Sloane street, S.W. *Council*, 1900-2.

1894 Dickson, John William, B.A., M.B., B.C.Cantab., 42, Hertford street, Mayfair, W.

Elected

1886† Donald, Archibald, M.D.Edin., M.R.C.P., Obstetric Physician to the Royal Infirmary, Manchester; Honorary Surgeon to St. Mary's Hospital for Women, Manchester; Sunnyside, Victoria park, Manchester. *Council*, 1893-5. *Trans.* 3.

1879* Doran, Alban H. G., F.R.C.S., Surgeon to the Samaritan Free Hospital; 9, Granville place, Portman square, W. *Council*, 1883-5. *Hon. Lib.* 1886-7. *Hon. Sec.* 1888-91. *Vice-Pres.* 1892-4. *Pres.* 1899-1900. *Trans.* 24.

1890† Douty, Edward Henry, M.A., M.B., B.C.Cantab., La Madeleine, Cannes; (*Summer*, 7, rue St. Roch., Paris).

1887 Dovaston, Milward Edmund, M.R.C.S., Hatchcroft house, Hendon, N.W.

1899† Down, Elgar, L.R.C.P.Lond., Wingfield House, Stoke, Devonport.

1896 Downes, J. Lockhart, M.B., C.M.Edin., 269, Romford road, E.

1884† Doyle, E. A. Gaynes, L.R.C.P., Colonial Hospital, Port of Spain, Trinidad.

1894† Drew, Henry William, F.R.C.S., Eastgate, East Croydon.

1883 Duncan, Alexander George, M.B., 25, Amhurst park, Stamford hill, N.

1871* Eastes, George, M.B., F.R.C.S., 35, Gloucester terrace, Hyde park, W. *Council*, 1878-80, 1906.

1883† Eccles, F. Richard, M.D., Professor of Gynæcology, Western University; 1, Ellwood place, Queen's avenue, London, Ontario, Canada.

1893* Eden, Thomas Watts, M.D.Edin., M.R.C.P.Lond., Assistant Obstetric Physician to, and Lecturer on Practical Midwifery at, Charing Cross Hospital, 26, Queen Anne street, W. *Council*, 1897-9, 1905-6. *Board Exam. Midwives*, 1903–5. *Trans.* 5.

1903† Edge, Frederick, M.D.Lond., F.R.C.S.Eng., 54, Darlington street, Wolverhampton.

Elected

1901 Ellis, Francis Hamilton, M.B., B.C.Cantab., Grove Hospital, Tooting Grove, Tooting Graveney, S.W.

1873*†Engelmann, George Julius, A.M., M.D., 336, Beacon street, Boston, Mass., U.S.A.

1905 English, Thomas Crisp, M.B.Lond., F.R.C.S., 31, Grosvenor street, W.

1897 Evans, Evan Laming, M.B., B.C.Cantab., F.R.C.S., 36, Bryanston street, Great Cumberland place, W.

1875† Ewart, John Henry, M.R.C.S., L.R.C.P., Eastney, Devonshire place, Eastbourne. *Council*, 1904-6.

1899 Fairbairn, John Shields, M.D., B.Ch.Oxon., Assistant Obstetric Physician to St. Thomas's Hospital, 60, Wimpole street, W. *Council*, 1904-6. *Board Exam. Midwives*, 1904-5. *Trans.* 1.

1894 Fairweather, David, M.A., M.D., C.M.Edin., Alderman's hill, Palmer's green, N.

1876† Farncombe, Richard, M.D.Brux., 183, Belgrave road, Balsall heath, Birmingham.

1903† Farncombe, William Turberville, M.D., Harborne, Birmingham.

1869* Farquhar, William, M.D., Deputy Surgeon-General, 40, Westbourne gardens, Bayswater, W.

1882† Farrar, Joseph, M.D., Gainsborough. *Trans.* 1.

1894† Fazan, Charles Herbert, L.R.C.P.Lond., Belmont, Wadhurst, Sussex.

1868* Fegan, Richard, M.D., Westcombe park, Blackheath, S.E.

1883 Fenton, Hugh, M.D., Physician, Chelsea Hospital for Women; 27 George street, Hanover square, W.

1901† Ferguson, George Bagot, M.D., M.Ch.Oxon, Altidore Villa, Pittville, Cheltenham.

1893† Finley, Harry, M.D.Lond., West Malvern, Worcestershire.

1877*†Fonmartin, Henry de, M.D., 26, Newberry terrace, Lower Bullar street, Nichols Town, Southampton.

Elected

1897† Fothergill, W. E., M.B., C.M.Edin., Lecturer on Midwifery and Diseases of Women, Victoria University; Assistant Physician Northern Hospital for Women and Children, Manchester; 13, St John Street, Manchester.

1884 Fouracre, Robert Perriman, M.R.C.S., 58, Tollington park, N.

1886† Fowler, Charles Owen, M.D., Cotford House, Thornton heath. *Council*, 1901–3.

1898† Frampton, Trevethan, M.R.C.S., F.R.C.P., 15, Brunswick square, Brighton.

1875*†Fraser, Angus, M.D., Physician and Lecturer on Clinical Medicine to the Aberdeen Royal Infirmary; 232, Union street, Aberdeen. *Council*, 1897-1900.

1888† Fraser, James Alexander, L.R.C.P.Lond., Western Lodge, Romford.

1902† Freeland, Arthur Raymond Stilwell, L.R.C.P., M.R.C.S., St. John's Cottage, Leatherhead.

1905 Fuller, Arthur W., M.D.Edin., 23, Wimpole street, W.

1883* Fuller, Henry Roxburgh, M.D.Cantab., 45, Curzon street, Mayfair, W. *Council*, 1893. *Trans.* 1.

1905 Fuller, J. Reginald, M.D.Durh., 6, Crescent road, Crouch End, N.

1886† Furner, Willoughby, F.R.C.S., 13, Brunswick square, Brighton. *Council*, 1894-6.

1874* Galabin, Alfred Lewis, M.A., M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, Guy's Hospital; 49, Wimpole street, Cavendish square, W. *Council*, 1876-8. *Hon. Lib.* 1879. *Hon. Sec.* 1880-3. *Vice-Pres.* 1884. *Treas.* 1885-8. *Pres.* 1889-90. *Trans.* 12.

1888† Galloway, Arthur Wilton, L.R.C.P.Lond., Malverns, Epping.

Elected

1863* Galton, John H., M.D., Chunam, Sylvan road, Upper Norwood, S.E. *Council*, 1874-6, 1891-2. *Vice-Pres.* 1895-8.

1881 Gandy, William, M.R.C.S., Hill Top, Central hill, Norwood, S.E. *Council*, 1897-8.

1886*†Garde, Henry Croker, F.R.C.S.Edin., Maryborough, Queensland.

1887 Gardiner, Bruce H. J., M.D., Gloucester House, Barry road, East Dulwich, S.E.

1879 Gardner, John Twiname, 5, Embankment gardens, Chelsea, S.W.

1872*†Gardner, William, M.A., M.D., Professor of Gynæcology. McGill University; Gynæcologist to the Royal Victoria Hospital; 109, Union avenue, Montreal, Canada.

1876† Garner, John, M.R.C.S., 21, Easy row, Birmingham.

1873*†Garton, William, M.D., F.R.C.S., Inglewood, Aughton, near Ormskirk.

1901 Gayer, Reginald Courtenay, L.R.C.P., 33, Stanhope gardens, South Kensington, S.W.

1889* Gell, Henry Willingham, M.A., M.B.Oxon., 36, Hyde park square, W.

1898*†Gemmell, John Edward, M.B., C.M.Edin., Hon. Surgeon to the Hospital for Women, Liverpool; 12, Rodney street, Liverpool.

1902*†George, Jessie, L.R.C.P., L.R.C.S.Edin., 42, Marsden street, Calcutta, India.

1859*†Gervis, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; The Towers, Hillingdon, Uxbridge. *Council*, 1864-6, 1889-91, 1893. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-81. *Pres.* 1883-4. *Trans.* 8.

1866* Gervis, Frederick Heudebourck, M.D.Brux., 1, Fellows road, Haverstock hill, N.W. *Council*, 1877-9. *Vice-Pres.* 1892. *Trans.* 1.

Elected

1899† Gervis, Henry, M.A., M.B., B.C.Cantab., 74, Dyke road, Brighton.

1883* Gibbons, Robert Alexander, M.D., Physician to the Grosvenor Hospital for Women and Children; 29, Cadogan place, S.W. *Council*, 1889-90. *Trans.* 1.

1894 Gibson, Henry Wilkes, L.R.C.P.Lond., 6, College terrace, Fitzjohn's avenue, N.W.

1892 Giles, Arthur Edward, M.D.Lond., M.R.C.P., Physician to Out-patients, Chelsea Hospital for Women; 10, Upper Wimpole street, W. *Council*, 1898-1900. *Trans.* 7.

1869 Gill, William, L.R.C.P.Lond., 11, Russell square, W.C.

1891† Gimblett, William Henry, M.D.Durh., "La Roche," Onslow gardens, Wallington, Surrey.

1899† Glover, Thomas Anderson, M.D., C.M.Edin., 24, Hallgate, Doncaster.

1894† Goddard, Charles Ernest, M.D., Wembley, Harrow.

1871 *Godson, Clement, M.D., C.M.; 82, Brook street, W. *Council*, 1876-7. *Hon. Sec.* 1878-81. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877, 1882-86. *Trans.* 5.

1893† Gordon, Frederick William, L.R.C.P.Lond., Manukau road, Auckland, New Zealand.

1883 Gordon, John, M.D., 49, Newgate street, E.C.

1869† Goss, Tregenna Biddulph, M.R.C.S., 1, The Circus, Bath. *Hon. Loc. Sec.*

1891† Gostling, William Ayton, M.D., B.S.Lond., Barningham, West Worthing.

1889 Goullet, Charles Arthur, L.R.C.P.Lond., 2, Finchley road, N.W. *Council* 1902–5.

1890 Gow, William John, M.D.Lond., Physician-Accoucheur in charge of Out-patients, St. Mary's Hospital; 27, Weymouth street, W. *Council*, 1893-5-1901. *Board Exam. Midwives*, 1898-1900-1. *Hon. Lib.*, 1906. *Trans.* 2.

Elected

1893† Gowan, Bowie Campbell, L.R.C.P.Lond., Raven Dene, Great Stanmore.

1893 Grant, Leonard, M.D.Edin., Hillside, New Southgate, N.

1902† Grech, Salvatore, M.D.Malta, Professor of Obstetrics in the University of Malta; Accoucheur and Gynæcologist and Teacher of Practical Midwifery at the Central Civil Hospital; 31, Strada Mezzodi, Valetta, Malta.

1894† Green, Charles Robert Mortimer, F.R.C.S.Eng., Major, Indian Medical Service, c/o Inspector-General of Civil Hospitals, Bengal.

1905† Gribben, St. Leger Hugh, M.D.Edin., New Zealand.

1863 *Griffith, G. de Gorrequer, M.R.C.S., L.R.C.P., 34, St. George's square, S.W. *Trans.* 2.

1879* Griffith, Walter Spencer Anderson, M.D.Cantab., F.R.C.S., F.R.C.P., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 96, Harley street, W. *Council*, 1886-8, 1893-5, 1901–3. *Hon. Lib.* 1896-7. *Board Exam. Midwives*, 1887-9. *Trans.* 10.

1888*†Grimsdale, Thomas Babington, B.A., M.B.Cantab., Surgeon to the Hospital for Women, and Medical Officer to the Liverpool Lying-in Hospital; 29, Rodney street, Liverpool.

1880 Grogono, Walter Atkins, M.R.C.S., L.R.C.P., Witham Lodge, 171, Romford road, Stratford, E.

1896† Groves, Ernest W. Hey, M.B., B.Sc., 16, Richmond Hill, Clifton. *Trans.* 1.

1894 Hamilton, Bruce, L.R.C.P.Lond., Glenbrook, 5, Crediton road, West Hampstead, N.W.

1887† Hamilton, John, F.R.C.S.Ed., Beechhurst House, Swadlincote, Burton-on-Trent.

Elected

1883* Handfield-Jones, Montagu, M.D.Lond., F.R.C.P., Physician-Accoucheur to, and Lecturer on Midwifery and Diseases of Women at, St. Mary's Hospital; 35, Cavendish square, W. *Council*, 1887-9, 1896-7. *Board Exam. Midwives*, 1894-6. *Hon. Lib.* 1900-3. *Hon. Sec.* 1902–5. *Vice.-Pres.* 1906. *Trans.* 1.

1901 Handley, William Sampson, M.S., M.D.Lond., F.R.C.S.Eng., 51, Devonshire street, Portland place, W. *Council*, 1905–6. *Trans.* 2.

1892 Harold, John, M.B., B.Ch., B.A.O., 91, Harley street, W.

1877 Harper, Gerald S., M.B.Aber., 40, Curzon street, Mayfair, W. *Council*, 1894-5.

1898† Harper, John Robinson, L.R.C.P., Bear street, Barnstaple, Devon.

1878† Harries, Thomas Davies, F.R.C.S., Grosvenor House, Aberystwith, Cardiganshire.

1867*†Harris, William H., M.D., Deputy Surgeon-General, Shirley, Parklands, Surbiton.

1880* Harrison, Richard Charlton, M.R.C.S., L.R.C.P., 33, Uxbridge road, Ealing, W.

1890† Hart, David Berry, M.D.Edin., Assistant Gynæcologist, Royal Infirmary, Edinburgh; 29, Charlotte square, Edinburgh. *Council* 1902–5.

1886† Hartley, Horace, L.R.C.P.Ed., Stone, Staffordshire.

1886† Hartley, Reginald, M.D.Durh., F.R.C.S.Ed., Feltwell Lodge, Brandon, Norfolk.

1893 Harvey, John Jordan, L.R.C.P. & S.Edin., The Aviary, Canning Town, E.

1880 Harvey, John Stephenson Selwyn, M.D.Durh., M.R.C.P., 1, Astwood road, Cromwell road, S.W.

1905† Haultain, Francis William Nicol, M.D., F.R.C.P.Edin., 12, Charlotte square, Edinburgh.

Elected

1899† Hawes, Godfrey Charles Browne, L.R.C.P., Pangbourne, Reading.

1899*†Hawkes, Claude Somerville, L.R.C.P., Swansea place, Wickham Terrace, Brisbane, Queensland.

1893† Haydon, Thomas Horatio, M.B., B.C. Cantab., 22, High street, Marlborough.

1900† Hayford, Ernest James, M.D., c/o The Agent, Claude's Ashanti Goldfields, Ltd., Cape Coast Castle, Gold Coast, West Africa.

1901† Haynes, Edward James Ambrose, F.R.C.S.I., Weetalabah, Hay street west, Perth, Western Australia.

1903† Heilborn, William Ernest, M.B., B.Ch.Cantab., 6, Walmer place, Bradford, Yorks.

1892† Hellier, John Benjamin, M.D.Lond., Lecturer on Diseases of Women and Children, Yorkshire College; Hon. Obstetric Physician to Leeds Infirmary; 27, Park square, Leeds. *Council*, 1906.

1890† Helme, T. Arthur, M.D.Edin., M.R.C.P., Hon. Surgeon for Women to the Northern Hospital for Women and Children, Manchester, 3, St. Peter's square, Manchester.

1867† Hembrough, John William, M.D., St. Nicholas Chambers, Newcastle-on-Tyne.

1876* Herman, George Ernest, M.B., F.R.C.P., Consulting Obstetric Physician to the London Hospital; 20, Harley street, Cavendish square, W. *Council*, 1878-9, 1898-1901. *Hon. Lib.* 1880-1. *Hon. Sec.* 1882-5. *Vice-Pres.* 1886-7. *Board Exam. Midwives*, 1886-8. *Treas.* 1889-92, 1903-6. *Pres.* 1893-4. *Trans.* 34.

1903 Hicks, Henry Thomas, F.R.C.S.Eng., 4, St. Thomas's street, S.E.

1901† Hilliard, Francis Porteus Tyrrell, M.A., M.B.Oxon., Billericay, Essex.

Elected

1898 Hindley, Godfrey D., L.R.C.P.Lond., 749, Fulham road, S.W.

1886† Hodges, Herbert Chamney, L.R.C.P.Lond., Watton-at-Stone, Herts. *Trans.* 1.

1886† Holberton, Henry Nelson, L.R.C.P.Lond., East Molesey.

1891† Holman, Robert Colgate, M.R.C.S., Whithorne House, Midhurst, Sussex.

1864* Hood, Wharton Peter, M.D., 11, Seymour street, Portman square, W.

1896† Hopkins, George Herbert, F.R.C.S., 3, North Quay, Brisbane, Queensland.

1905† Hopkins, Lionel Gordon, M.D.Lond., "The Leas," Westcliffe-on-Sea, Essex.

1883* Horrocks, Peter, M.D., F.R.C.P.Lond., Obstetric Physician to Guy's Hospital; 42, Brook street, W. *Council*, 1886-7. *Hon. Lib.* 1888-9. *Hon. Sec.* 1890-3. *Vice-Pres.* 1894-6. *Pres.* 1901–2. *Trans.* 2.

1876 Horsman, Godfrey Charles, L.S.A., 22, King street, Portman square, W.

1883 Hoskin, Theophilus, L.R.C.P.Lond., 1, Amhurst park, N.

1884† Hough, Charles Henry, M.R.C.S., Ambleside, Westmorland.

1879† Hubbard, Thomas Wells, L.R.C.P., L.R.C.S., Barming place, Maidstone.

1901 Humphreys, Francis Rowland, L.R.C.P.Lond., 27, Fellows road, N.W.

1884*†Hurry, Jamieson Boyd, M.D.Cantab., 43, Castle street, Reading. *Council*, 1887-9. *Vice.-Pres.* 1897-1900. *Trans.* 2.

1878*†Husband, Walter Edward, M.R.C.S., L.R.C.P., Grove Lea, Lansdown, Bath.

Elected

1895 Huxley, Henry, L.R.C.P.Lond., 39, Leinster gardens, Hyde park, W.

1904† Illington, Edmund Moritz, Capt. I.M.S., L.R.C.P., c/o Surgeon-General, with the Government of Madras, Madras.

1894† Ilott, Herbert James, M.D.Aber., 57, High street, Bromley, Kent.

1901† Inglis, Arthur Stephen, M.D.Aber., 2, East ascent, St. Leonards-on-sea.

1902† Inglis, John, M.D., 18, Cornwallis gardens, Hastings.

1902† Ionides, Theodore Henry, M.B., B.S.Lond., 25, First avenue, Brighton.

1903 Ironside, Robert Adrian, M.D., C.M.Aber., Campbell House, Fitzjohn's avenue, N.W.

1884*†Irwin, John Arthur, M.A., M.D., 14, West Twenty-ninth street, New York.

1904 Ivens, Mary H. Frances, M.B., M.S.Lond., 25, Wimpole street, W.

1897 Jäger, Harold, M.B.Lond., 6, Darnley road, Royal crescent, W.

1890† James, Charles Henry, L.R.C.P.Lond., Major, Indian Medical Service; Gatiala, Punjab, India.

1883*†Jenkins, Edward Johnstone, M.D.Oxon., 213, Macquarie street, Sydney.

1882* Jennings, Charles Egerton, M.D.Durh., F.R.C.S.Eng., Assistant Surgeon to the North-West London Hospital; Burke House, Beaconsfield.

1901*†Johnson, Edward Angus, M.B., B.S.Melb., L.R.C.P. Lond., "St. Catharine's" Prospect, South Australia.

1900† Johnson, Henry Heath Pochin, L.R.C.P., Broadleas, Fourth avenue, Trafford park, Manchester.

Elected

1868† Jones, Evan, M.R.C.S., Ty-Mawr, Aberdare, Glamorganshire. *Council*, 1886-8. *Vice.-Pres.* 1890-1.

1894 Jones, Evan, L.R.C.P.Lond., 89, Goswell road, E.C.

1902† Jones, Evan James Trevor, M.D.Brux., Ty-Mawr, Aberdare, Glamorganshire.

1895† Jones, George Horatio, M.R.C.S., Deddington, Oxon.

1894 Jones, John Arnallt, M.D.Durh., Heathmont, Aberavon, Port Talbot, Glamorganshire.

1873† Jones, Philip W., M.R.C.S., L.R.C.P., River House, Enfield.

1886† Jones, William Owen, M.R.C.S., The Downs, Bowdon Cheshire.

1903† Jordan, John Furneaux, M.B., F.R.C.S., Surgeon to the Birmingham Hospital for Women, 9, Newhall street, Birmingham.

1884 Keates, William Cooper, L.R.C.P., 20, East Dulwich road, S.E.

1883† Keeling, James Hurd, M.D., 267, Glossop road, Sheffield.

1896 Keep, Arthur Corrie, M.D., C.M.Edin., Surgeon to Outpatients to the Samaritan Free Hospital; 14, Gloucester place, Portman square, W. *Council*, 1902-4.

1894 Kellett, Alfred Featherstone, M.B., B.C.Cantab., 39, Granville park, Blackheath, S.E.

1886 Kennedy, Alfred Edmund, L.R.C.P.Ed., Chesterton House, Plaistow, E.

1879 Ker, Hugh Richard, L.R.C.P.Ed., Tintern, 2, Balham hill, S.W.

1895† Kerr, John Martin Munro, M.B., C.M.Glasg.; Obstetric Physician to the Glasgow Maternity Hospital; 28. Berkeley terrace, Glasgow. *Council*, 1906. *Trans.* 2.

1877*† Kerswill, John Bedford, M.R.C.P.Ed., Fairfield, St. German's, Cornwall.

Elected

O.F.* KIALLMARK, HENRY WALTER, M.R.C.S., 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

1872* KISCH, ALBERT, M.R.C.S., 61, Portsdown road, W. *Council*, 1896-7.

1876*†KNOTT, CHARLES, M.R.C.P.Ed., Liz Ville, Elm grove, Southsea.

1889 LAKE, GEORGE ROBERT, M.R.C.S., 177, Gloucester terrace, Hyde park, W.

1867* LANGFORD, CHARLES P., M.R.C.S., Sunnyside, Hornsey lane, N.

1894† LEA, ARNOLD W. W., M.D., B.S.Lond., F.R.C.S., Lecturer on Midwifery and Diseases of Women, Owens College; 274, Oxford road, Manchester. *Council*, 1903-6. *Trans.* 2.

1901 LEAHY-LYNCH, TIMOTHY, L.R.C.P., L.M.Edin., 2, Finsbury park road, N.

1905 LEAKEY, ALEXANDER B., M.B., B.Ch.Edin., 84, Pine road, Cricklewood, N.W.

1884*†LEDIARD, HENRY AMBROSE, M.D., 35, Lowther street, Carlisle. *Council*, 1890-2. *Trans.* 1.

1903† LEICESTER, JOHN CYRIL HOLDICH, M.D., B.S., F.R.C.S. Eng., Captain, Indian Medical Service, c/o Messrs. Grindlay & Co., Calcutta. *Trans.* 1.

1902† LENDON, ALFRED AUSTIN, M.D.Lond., Lecturer on Obstetrics in the University of Adelaide, North terrace, Adelaide, South Australia.

1897 LESLIE, WILLIAM MURRAY, M.D.Edin., 74, Cadogan place, Belgrave square, S.W.

1900*†LEVISON, HUGO ADOLF, M.D.(Columbia Univ.), L.R.C.P. Lond., 44, West 35th street, New York.

1885* LEWERS, ARTHUR H. N., M.D.Lond., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at the London Hospital; 72, Harley street, W. *Council*, 1887-9, 1893, 1901-3. *Board Exam. Midwives*, 1895-7. *Hon. Lib.* 1904–5. *Hon. Sec.* 1906. *Trans.* 13.

1902 LEWIS, ERNEST WOOL, L.R.C.P., M.R.C.S., The Hermitage, Fulham Palace road, S.W.

Elected

1901† Littlewood, Harry, F.R.C.S., 25, Park square, Leeds. *Trans.* 1.

1894 Livermore, William Leppingwell, L.R.C.P.Lond., 52, Stapleton Hall road, Stroud Green, N.

1899 Lockyer, Cuthbert, M.D., B.S.Lond., F.R.C.S., 117a, Harley street, W. *Council*, 1904–6. *Board Exam. Midwives*, 1905. *Trans.* 6.

1893† Logan, Roderic Robert Walter, M.R.C.S., Church street, Ashby-de-la-Zouch.

1905† Longridge, Charles John Nepean, M.D.Vict., F.R.C.S. Eng., Hospital for Women, Soho square, W.

1893† Lowe, Walter George, M.D.Lond., F.R.C.S., Burton on-Trent.

1878*†Lycett, John Allan, M.D., Consulting Gynæcologist to the Wolverhampton and District Hospital for Women; "Gatcombe," Wolverhampton.

1905† Lyle, Robert Patton Ranken, M.D.Dubl., 11, Ellison place, Newcastle-on-Tyne.

1902† Lynn, Edward, M.R.C.S., 638, Woolwich road, New Charlton, Kent.

1896† Lyons, A., M.B., Thames Ditton.

1890 McCann, Frederick John, M.D., C.M.Edin., F.R.C.S. Eng., M.R.C.P., Physician to In-patients at the Samaritan Hospital; 5, Curzon street, Mayfair, W. *Council*, 1897-8. *Board Exam. Midwives*, 1904–5 *Trans.* 3.

1894† McCausland, Albert Stanley, M.D.Brux., Churchill House, Swanage.

1890† McCaw, J. Dysart, M.D., F.R.C.S., Wallington, Surrey. *Council*, 1898-1900.

1894† McDonnell, Æneas John, M.D., Ch.M.Sydney, Rathdonnell, Toowoomba, Queensland.

1896 M'Donnell, W. Campbell, L.R.C.P.Lond., 10, Park lane, Stoke Newington, N.

Elected

1892† McKay, W. J. Stewart, M.B., M.Ch.Sydney, Australian Club, Macquarie street, Sydney, N.S.W.

1897† McKerron, Robert Gordon, M.B.Aberd., 1, Albyn place, Aberdeen. *Trans.* 2.

1900† Macan, Jameson John, M.A., M.D.Cantab., Crossgates, Cheam, Surrey.

1893† Maclean, Ewen John, M.D., F.R.S.Edin., M.R.C.P.Lond., Senior Gynæcologist to Cardiff Infirmary; 12, Park place, Cardiff. *Council*, 1900.

1899 Macleod, William Aitken, M.B., C.M.Edin., 9, Pembridge villas, Bayswater, W.

1878*†Macnaughton-Jones, H., M.D., M.A.O. (Hon. Causâ), F.R.C.S.I. & Edin., 131, Harley street, Cavendish square, W. *Trans.* 1.

1894† McOscar, John, L.R.C.P.Lond., The Shrubbery, Woking.

1905 McQueen, Robert Martin, L.R.C.P.Lond., M.R.C.S., 1, Culford mansions, Cadogan square, S.W.

1899† Maguire, George J., M.B., B.Ch., Kew road, Richmond. *Trans.* 1.

1895† Maidlow, William Harvey, M.D.Durh., F.R.C.S.Eng. Ilminster, Somerset.

1884* Malcolm, John D., M.B., C.M., Surgeon to the Samaritan Free Hospital; 13, Portman street, W. *Council*, 1894-6. *Trans.* 2.

1871†*Malins, Edward, M.D., Obstetric Physician to the General Hospital, Professor of Midwifery at Mason College, Birmingham; 50, Newhall street, Birmingham. *Council*, 1881-3. *Vice-Pres.* 1884-6, 1901-2. *Pres.* 1903–4.

1903† Malins, Herbert, B.A.Oxon., M.B.Edin., 283, London road, West Croydon.

1868*†March, Henry Colley, M.D., Portisham, Dorchester. *Council*, 1890-2.

Elected

1887 Mark, Leonard P., M.D.Durh., 49, Oxford terrace, Hyde park, W.

1862*†Marriott, Robert Buchanan, M.R.C.S., Swaffham, Norfolk.

1887† Marsh, O. E. Bulwer, L.R.C.P.Ed., Parkdale, Clytha park, Newport, Monmouthshire.

1904 Marshall, James Cole, M.B.Lond., F.R.C.S.Eng., 1E, Maida Vale mansions, Maida Vale, W.

1905† Marten, Robert Humphrey, M.B., B.C.Cantab., Adelaide.

1890† Martin, Christopher, M.B., C.M.Edin., F.R.C.S.Eng., Surgeon to the Birmingham and Midland Hospital for Women; 35, George road, Edgbaston, Birmingham. *Trans.* 1.

1905† Masters, Alfred Thomas, L.S.A., Northridge, Northiam, Sussex.

1899† Maxwell, John Preston, M.B.Lond., F.R.C.S., E.P. Mission, Engchhun, Amoy, China. *Trans.* 1.

1904 Maxwell, R. Drummond, M.D.Lond., 102, Oxford gardens, North Kensington, W.

1890 May, Chichester Gould, M.A., M.D.Cantab., Assistant Physician to the Grosvenor Hospital for Women and Children; 59, Cadogan place, S.W.

1884† Maynard, Edward Charles, L.R.C.P.Ed., 39, Wynnstay gardens, Kensington.

1886 Mennell, Zebulon, M.R.C.S., 1, Royal crescent, Notting hill, W.

1898 Menzies, Henry, M.B.Cantab., 4, Ashley gardens, S.W.

1882 Meredith, William Appleton, M.B., C.M., F.R.C.S.Eng., Surgeon to the Samaritan Free Hospital for Women and Children; 21, Manchester square, W. *Council*, 1886-8. *Vice-Pres.* 1891-3. *Trans.* 3.

1893† Michie, Harry, M.B.Aber., 27, Regent street, Nottingham.

Elected

1875*†Miles, Abijah J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1902 Milligan, Wyndham Anstruther, M.B., C.M.Aber., 68, Park street, Grosvenor square, W.

1876*†Millman, Thomas, M.D., 490, Huron street, Toronto, Ontario, Canada.

1880† Mills, Robert James, M.B., M.C., 35, Surrey street, Norwich.

1892† Milton, Herbert M. Nelson, M.R.C.S., Kasr-el-Aini Hospital, Cairo, Egypt.

1869*†Minns, Pembroke R. J. B., M.D., Thetford, Norfolk.

1867*†Mitchell, Robert Nathal, M.D., Brookwood, Hollington, St. Leonard's-on-Sea.

1903† Moore-Ede, William Edward, M.B., B.C.Cantab., 64, Jesmond road, Newcastle-on-Tyne.

1859† Moorhead, John, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1895† Morison, Henry Bannermann, M.B.Durh., Lindley Lodge, Mottingham, Eltham, S.E.

1890 Morris, Charles Arthur, C.V.O., M.A., M.B., M.C. Cantab., F.R.C.S., Surgeon to the Grosvenor Hospital for Women and Children, 28, Chester square, S.W.

1883* Morris, Clarke Kelly, M.R.C.S., Gordon Lodge, Charlton road, Blackheath, S.E.

1893† Morse, Thomas Herbert, F.R.C.S., All Saints' green, Norwich. *Trans.* 1.

1896 Mugford, Sidney Arthur, L.R.C.P., 135, Kennington park road, S.E.

1893 Muir, Robert Douglas, M.D., The Limes, New Cross road, S.E.

1885 Murray, Charles Stormont, L.R.C.S. and L.M.Ed., 85, Gloucester place, Portman square, W.

Elected

1896† Nariman, R. T., M.D.Brux., Parsi Lying-in Hospital, Bombay.

1902† Nariman, Temulfi Bhicafi, L.M.&F.Bombay, Bombay, India.

1892† Nash, W. Gifford, F.R.C.S., Senior Surgeon to the Bedford County Hospital, Clavering House, De Parys avenue, Bedford.

1902† Newland, H. Simpson, M.B.Adel., F.R.C.S.Eng., 12, North terrace, Adelaide, South Australia.

1889† Newnham, William Harry Christopher, M.A., M.B.Cantab., Physician-Accoucheur to the Bristol General Hospital; Chandos Villa, Queen's road, Clifton, Bristol.

1895† Newstead, James, M.R.C.S., 9, York place, Clifton, Bristol.

1893† Nichol, Frank Edward, M.A., M.B., B.C.Cantab., 1, Ethelbert crescent, Margate.

1873† Nicholson, Arthur, M.B.Lond., 30, Brunswick square, Brighton. *Council*, 1897-9.

1904† Nicholson, Harry Oliphant, M.D.Edin., 20, Manor place, Edinburgh.

1876* Nix, Edward James, M.D., 11, Weymouth street, W. *Council*, 1889-90.

1903 Nolan, William, L.R.C.P. & S.I., L.M.Dubl., 20, Talbot road, Bayswater, W.

1903† Nott, Arthur Holbrook, M.B.Durh., Major, Indian Medical Service, c/o Messrs. Grindlay & Co., Calcutta.

1904 Odgers, Norman Blake, M.B., B.Ch.Oxon, F.R.C.S.Eng., 8, St. Thomas's street, S.E.

1888 Oliver, Franklin Hewitt, L.R.C.P.Lond., 2, Kingsland road, N.E.

1905 Orr, William Robert, M.D., Coolard lodge, East Finchley, N.

Elected

1899† Osborn, Francis Arthur, L.R.C.P.Lond., Ennismore House, Dover.

1877† Osterloh, Paul Rudolph, M.D. Leipzic, Physician for Diseases of Women, Diaconissen Hospital; Wienerstrasse 8, Dresden.

1892 Owen, Samuel Walshe, L.R.C.P.Lond., 10, Shepherd's Bush road, W.

1902 Oxley, Alfred James Rice, M.D.Dubl., 7, Courtfield road, S.W.

1889* Page, Harry Marmaduke, M.D.Brux., F.R.C.S., 14, Grenville place, S.W.

1877* Paramore, Richard, M.D., 2, Gordon square, W.C.

1867*†Parks, John, M.R.C.S., Bank House, Manchester road, Bury, Lancashire.

1887 Parsons, John Inglis, M.D.Durh., M.R.C.P., Physician to the Chelsea Hospital for Women, 3, Queen street, Mayfair, W. *Trans.* 2.

1880 Parsons, Sidney, M.R.C.S., 78, Kensington Park road, W.

1904 Paterson, Herbert John, M.A., M.B., B.C.Cantab., F.R.C.S.Eng., 9, Upper Wimpole street, W.

1899 Paul, J. E., M.D., 26, Queensborough terrace, Bayswater, W.

1902† Payne, Edward Marten, M.B., C.M., St. John's, Richmond terrace, Blackburn.

1882*†Peacey, William, M.D., Rydal Mount, St. John's road, Eastbourne.

1894 Peake, Solomon, M.R.C.S., 228, Goldhawk road, Shepherd's Bush, W.

1899† Peck, Francis Samuel, M.R.C.S.Eng., Major, Indian Medical Service; 6, Harington street, Calcutta.

1871* Pedler, George Henry, M.R.C.S., L.R.C.P., 6, Trevor terrace, Rutland gate, S.W. *Council*, 1897-8.

1880*†Pedley, Thomas Franklin, M.D., Rangoon, India. *Trans.* 1.

Elected

1898† Penny, Alfred Gervase, M.A., M.B., B.C.Cantab. Rahere house, Clayfield, Brisbane, Queensland.

1881† Perigal, Arthur, M.D., New Barnet, Herts. *Council*, 1892–3.

1879*†Pesikaka, Hormasji Dosabhai, 23, Hornby row, Bombay.

1894 Petty, David, M.B., C.M.Edin., 6, High road, South Tottenham, N.E.

1903† Philbrick, John Harold, M.B., B.Ch.Cantab. c/o Messrs. Grindlay & Co., Calcutta.

1879 Phillips, George Richard Turner, M.R.C.S., 28, Palace court, Bayswater hill, W. *Council*, 1891.

1882 Phillips, John, M.A., M.D.Cantab., F.R.C.P., Obstetric Physician to King's College Hospital, and Lecturer on Practical Obstetrics in King's College; 68, Brook street, W. *Council*, 1887-9, 1893. 1906. *Hon. Lib.* 1894-5. *Hon. Sec.* 1896-9. *Board Exam. Midwives*, 1892-4. *Vice-Pres.* 1900-3. *Chairman* 1905. *Trans.* 11.

1878* Philpot, Joseph Henry, M.D., 61, Chester square, S.W. *Council*, 1891.

1889† Pinhorn, Richard, L.R.C.P.Lond., 5, Cambridge terrace, Dover. *Council*, 1897-9.

1893 Playfair, Hugh James Moon, M.D.Lond., Assistant Physician, Hospital for Women and Children, Waterloo road; 7, Upper Brook street, Grosvenor square, W. *Council*, 1900.

1891* Pollock, William Rivers, M.B., B.C.Cantab., Assistant Obstetric Physician to the Westminster Hospital, 56, Park street, Grosvenor square, W. *Council*, 1895-7, 1902-4. *Board Exam. Midwives*, 1898-9.

1891† Pope, Henry Sharland, M.B., B.C.Cantab., Castle Bailey, Bridgwater.

1888* Popham, Robert Brooks, M.R.C.P.Edin., L.R.C.P.Lond., "Endyon," 130, Argyle road, West Ealing, W.

1903 Potts, William Alexander, B.A.Cantab., M.D.Edin., 160, Hagley road, Birmingham.

Elected

1901 Powell, Llewellyn, M.B., B.C.Cantab., 37, Brunswick gardens, Campden Hill, W.

1886 Prangley, Henry John, L.R.C.P.Lond., Tudor House, 197, Anerley road, Anerley, S.E.

1880* Prickett, Marmaduke, M.A.Cantab., M.D., Physician to the Samaritan Hospital; 27, Oxford square, W. *Council*, 1892.

1895 Priestley, R. C., M.A., M.B.Cantab., 81, Linden gardens, Bayswater, W.

1905 Provis, Francis Lionel, L.R.C.P.Lond., 11, Brook street, Hanover square, W.

1898† Purslow, Charles Edwin, M.D., M.R.C.P.Lond., Honorary Obstetric Officer, Queen's Hospital, Birmingham; 192, Broad street, Birmingham.

1876*†Quirke, Joseph, M.R.C.P.Ed., The Oaklands, Hunter's road, Handsworth, Birmingham.

1878† Rawlings, John Adams, M.R.C.P.Ed., 14, Northampton place, Swansea.

1897† Rawlings, J. D., M.B.Lond., Rose Hill House, Dorking.

1870* Ray, Edward Reynolds, M.R.C.S., 15a, Upper Brook street, W. *Council*, 1902-4.

1894† Rayner, Herbert Edward, F.R.C.S., Diamond hill, Camberley, Surrey.

1899† Rayner, David Charles, F.R.C.S.Eng., 9, Lansdowne place, Victoria square, Clifton, Bristol.

1860* Rayner, John, M.D., Swaledale House, Highbury quadrant, N.

1879 Read, Thomas Laurence, M.R.C.S., 11, Petersham terrace, Queen's gate, S.W. *Council*, 1892.

1905† Rees, Rhys Basil, L.S.A.Lond., Priory house, Queen's crescent, N.W.

1879† Reid, William Loudon, M.D., Professor of Midwifery and Diseases of Women and Children, Anderson's College; Physician to the Glasgow Maternity Hospital; 7, Royal crescent, Glasgow. *Council*, 1899-1901-2.

Elected

1893† Renshaw, Israel James Edward, F.R.C.S.Edin., Ashton Grange, Cross street, Ashton-upon-Mersey.

1875*†Rey, Eugenio, M.D., 39, Via Cavour, Turin.

1890 Reynolds, John, M.D.Brux., 11, Brixton hill, S.W.

1905† Rice, George, M.D.Durh., 46, Friar gate, Derby.

1905 Richardson, Martin James, M.B., C.M.Edin., 47, Gloucester place, Portman square, W.

1872*†Richardson, William L., M.D., A.M., Professor of Obstetrics in Harvard University; Physician to the Boston Lying-in Hospital; 225, Commonwealth avenue, Boston, Massachusetts, U.S.

1889† Richmond, Thomas, L.R.C.P.Ed., 4, Burnbank gardens, Glasgow.

1871* Rigden, Walter, M.D. St. And., 16, Thurloe place, S.W. *Council*, 1882-3. *Trans.* 1.

1892 Roberts, Charles Hubert, M.D.Lond., F.R.C.S.Eng., M.R.C.P., Physician to Out-patients to Queen Charlotte's Hospital; Demonstrator of Practical Midwifery and Diseases of Women, St. Bartholomew's Hospital; 21, Welbeck street, Cavendish square. *Council*, 1897-9,1905-6. *Board Exam. Midwives*, 1901. *Trans.*4.

O.F.*† Roberts, David Lloyd, M.D., F.R.C.P., F.R.S.Edin., Consulting Obstetric Physician to the Manchester Royal Infirmary; and Lecturer on Clinical Midwifery and the Diseases of Women in Owens College; 11, St. John street, Deansgate, Manchester. *Council*, 1868-70, 1880-2. *Vice-Pres.* 1871-2. *Board Exam. Midwives*, 1900-4. *Trans.* 5.

1867* Roberts, David W., M.D., 56, Manchester street, Manchester square, W. *Council*, 1905.

1890† Roberts, Hugh Jones, M.R.C.S., Llywenarth, Penygroes, R.S.O., N. Wales.

1893 Roberts, Thomas, L.S.A., 152, Westbourne Grove, Bayswater, W.

1874* Robertson, William Borwick, M.D., St. Anne's, Thurlow park road, West Dulwich, S.E.

Elected

1892 Robinson, George H. Drummond, M.D., B.S.Lond., Assistant Obstetric Physician, West London Hospital; 17, Seymour street, Portman square, W. *Council*, 1899-1900. *Board Exam. Midwives*, 1898-1900. *Trans.* 2.

1887 Robinson, Hugh Shapter, L.R.C.P.Ed., Talfourd House, 78, Peckham road, Camberwell, S.E.

1876†*Roe, John Withington, M.D., Ellesmere, Salop.

1874*†Roots, William Henry, M.R.C.S., Canbury House, Kingston-on-Thames.

1903† Rose, Alexander Macgregor, M.B., Ch.B., 15, Victoria street, Aberdeen, N.B.

1904 Rose, Thomas, L.R.C.P., 69, Bloomsbury street, W.C.

1893† Rosenau, Albert, M.D., Haus Rosenau (am Kurgarten), Kissingen, Bavaria. (*Winter*, Winter Palace, Monte Carlo.)

1884† Rossiter, George Frederick, M.B., Surgeon to the Weston-super-Mare Hospital; Cairo Lodge, Weston-super-Mare.

1884† Roughton, Walter, F.R.C.S., Cranborne House, New Barnet.

1882* Routh, Amand, M.D., B.S., F.R.C.P., Obstetric Physician and Lecturer on Midwifery at Charing Cross Hospital; 14a, Manchester square, W. *Council*, 1886-8, 1896-7. *Board Exam. Midwives*, 1893-5. *Hon. Lib.* 1898-9. *Hon. Sec.* 1900-3. *Vice-Pres.* 1904–6. *Trans.* 5.

O.F.* Routh, Charles Henry Felix, M.D., Consulting Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61. *Vice-Pres.* 1874-6. *Trans.* 13.

1887*†Rowe, Arthur Walton, M.D.Dur., 1, Cecil street, Margate.

1886 Rushworth, Frank, M.D.Lond., 153, Finchley road, South Hampstead, N.W. *Council*, 1905.

1886† Rutherfoord, Henry Trotter, M.A., M.D.Cantab., Salisbury House, Taunton. *Council*, 1892-3. *Trans.* 1.

Elected

1866*†Saboia, Baron V. de, M.D., Director of the School of Medicine, Rio de Janeiro; 7, Rua dom Affonso, Petropolis, Rio Janeiro. *Trans.* 2.

1864*†Salter, John H., M.R.C.S., D'Arcy House, Tolleshunt d'Arcy, Kelvedon, Essex. *Council*, 1894-6.

1868* Sams, John Sutton, M.R.C.S., St. Peter's Lodge, Eltham road, Lee, S.E. *Council*, 1892.

1886† Sanderson, Robert, M.B.Oxon., 56, Brunswick square, Brighton.

1872 Sangster, Charles, M.R.C.S., 148, Lambeth road, S.E.

1903† Savage, Smallwood, M.B.Oxon., F.R.C.S.Eng., 133, Edmund street, Birmingham.

1894† Savory, Horace, M.A., M.B., B.C.Cantab., Assistant Physician to Bedford County Hospital, 2, Harpur place, Bedford. *Trans.* 1.

1890 Schacht, Frank Frederick, B.A., M.D.Cantab., 153, Cromwell road, S.W.

1902 Scharlieb, Mary Ann Dacomb, M.D.Lond., M.S., B.S., 149, Harley street, W. *Council*, 1905–6.

1882 Serjeant, David Maurice, M.D., 27, Peckham road, S.E.

1905 Serjeant, Edith, L.R.C.S.&P.Edin., 27, Peckham road, Camberwell, S.E.

1905 Serjeant, Helen Mary, L.R.C.S.&P.Edin., Bahes Castle, Hawkhurst, Kent.

1875 Seton, David Elphinstone, M.D., 1, Emperor's gate, S.W. *Council*, 1884.

1896† Sharman, Mark, M.B., C.M.Glas., Rickmansworth.

1894† Sharpin, Archdale Lloyd, L.R.C.P.Lond., Kimbolton house, Bedford.

1891 Shaw-Mackenzie, John Alexander, M.D.Lond., 42, Green street, Park lane, W.

1900† Shepherd, Thomas William, L.R.C.S.Edin., Castle Hill House, Launceston.

Elected

1902 Sikes, Alfred Walter, M.D., B.Sc.Lond., 40, Argyll road, Campden hill, W.

1902 Simson, Henry J. F., M.B., F.R.C.S.Ed., 80, Brook street, W.

1888† Sinclair, William Japp, Knt., M.D.Aber., Honorary Physician to the Southern Hospital for Women and Children and Maternity Hospital, Manchester; and Professor of Obstetrics and Gynæcology, Owens College, Manchester; 250, Oxford road, Manchester. *Council*, 1899-1902. *Vice-Pres.*, 1903-6. *Trans.* 1.

1881† Sloan, Archibald, M.B., 21, Elmbank street, Glasgow.

1876† Sloan, Samuel, M.D., C.M., 5, Somerset place, Sauchiehall street west, Glasgow.

1890† Sloman, Frederick, M.R.C.S., 18, Montpellier road, Brighton.

1903 Smith, Arthur Lionel Hall, L.R.C.P., M.R.C.S.Lond., 16, New Cavendish street, W.

1905* Smith, Darwall, M.B.Cantab., The General Lying-in Hospital, York road, S.E.

1901 Smith, Guy Bellingham, M.B., B.S.Lond., F.R.C.S., 24, St. Thomas's street, S.E. *Trans.* 1.

1867* Smith, Heywood, M.D., 25, Welbeck street, Cavendish square, W. *Council*, 1872-5. *Board Exam. Midwives*, 1874-6. *Trans.* 6.

1875 Smith, Richard Thomas, M.D., Physician to the Hospital for Women, Soho square; 33, Wimpole street, W.

1886† Smith, Samuel Parsons, L.K.Q.C.P.I., Park Hyrst, Addiscombe road, Croydon.

1899*† Smyly, William Josiah, Knt., M.D., F.R.C.P.I., 58, Merrion square, Dublin.

1899† Smithson, Oliver, L.R.C.P., New Bedford road, Luton, Beds.

1895 Soden, Wilfred Newell, M.B.Lond., Upcote, Mapesbury road, Brondesbury, N.W.

Elected

1868* Spaull, Barnard E., M.R.C.S., L.R.C.P., 1, Stanwick road, West Kensington, W.

1888* Spencer, Herbert R., M.D., B.S.Lond., F.R.C.P., Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 104, Harley street, W. *Council*, 1890-92. *Board Exam. Midwives*, 1896-7. *Hon. Sec.* 1898-1901. *Vice-Pres.*, 1902–4. *Editor*, 1903-6. *Trans.* 11.

1882* Spooner, Frederick Henry, M.D., Maitland Lodge, Maitland place, Clapton, N.E.

1876† Spurgin, Herbert Branwhite, M.R.C.S., 82, Abington street, Northampton.

1897 Stabb, Arthur Francis, M.B., B.C.Cantab., Assistant Obstetric Physician to St. George's Hospital, and Lecturer in Midwifery in the University of Cambridge; 132, Harley street, W. *Council*, 1899-1901. *Board Exam. Midwives*, 1903-5.

1877† Stephenson, William, M.D., Professor of Midwifery, University of Aberdeen; 3, Rubislaw terrace, Aberdeen. *Council*, 1881-3. *Vice-Pres.*, 1887-9. *Trans.* 2.

1894 Stevens, Thomas George, M.D., B.S.Lond., 8, Weymouth street, W. *Council*, 1902-3. *Board Exam. Midwives*, 1904-5. *Trans.* 2.

1884† Stevenson, Edmond Sinclair, Knt., F.R.C.S.Ed., Strathallan House, Rondebosch, Cape of Good Hope. *Trans.* 2.

1875*† Stewart, William, F.R.C.P.Ed., 26, Lethbridge road, Southport.

1884 Stivens, Bertram H. Lyne, M.D.Brux., 107, Park street, Grosvenor square, W.

1883 Stocks, Frederick, M.R.C.S., 421, Wandsworth road, S.W.

1894† Stott, William Atkinson, M.R.C.S., L.R.C.P.Lond., 2, Hillary place, Woodhouse lane, Leeds.

Elected

1866* STRANGE, WILLIAM HEATH, M.D., 2, Belsize avenue, Belsize park, N.W. *Council*, 1882-4.

1898† STURMER, ARTHUR JAMES, M.R.C.S., L.R.C.P., Lieut.-Col., c/o Messrs. Henry S. King & Co., 9, Pall Mall, S.W. *Trans.* 1.

1884 SUNDERLAND, SEPTIMUS, M.D., M.R.C.P., Physician to the Royal Hospital for Children and Women; 11, Cavendish place, Cavendish square, W.

1904 SWAFFIELD, WALTER H., M.D., F.R.C.S.Ed., 39, Weymouth street, Portland place, W.

1894 SWALLOW, ALLAN JAMES, M.B., B.S.Durh., The Laurels, 61, South side, Clapham common, S.W.

1896 SWAN, CHARLES ATKIN, M.B., B.Ch.Oxon., 3, Chester place, Hyde Park square, W.

1901 SWANTON, JAMES HUTCHINSON, M.D., M.Ch., 40, Harley street, W.

1893 SWAYNE, FRANCIS GRIFFITHS, M.A., M.B., B.C.Cantab., 140, Church road, Norwood, S.E.

1892† SWAYNE, WALTER CARLESS, M.D.Lond., Obstetric Physician, Bristol Royal Infirmary; Professor of Midwifery in University College, Bristol; Mathon house, 56, St. Paul's road, Clifton. *Council*, 1903-6.

1905† SWETE-EVANS, WILLIAM B., M.A., L.R.C.P., Malvern lodge, Southport.

1888* SWORN, HENRY GEORGE, L.K.Q.C.P. & L.M., 5, Highbury crescent, N.

1883 TAIT, EDWARD SABINE, M.D., 48, Highbury park, N. *Council*, 1892-4. *Trans.* 1.

1880*†TAKAKI, KANAHEIRO, F.R.C.S., 10, Nishi-Konyachō, Kiōbashika, Tokio, Japan.

1891 TARGETT, JAMES HENRY, M.B., M.S.Lond., F.R.C.S., Obstetric Surgeon and Joint Lecturer on Midwifery to Guy's Hospital, 19, Upper Wimpole street, W. *Council*, 1895-6. *Board Exam. Midwives*, 1900-2.

Elected

1892* Tate, Walter William Hunt, M.D.Lond., Obstetric Physician to, and Lecturer on Midwifery and the Diseases of Women at, St. Thomas's Hospital; 32, Queen Anne street, Cavendish square, W. *Council*, 1895-7. *Board Exam. Midwives*, 1898-9. *Trans.* 2.

1900 Taylor, Frank Edward, M.A., M.B., F.R.C.S., Pathologist to Chelsea Hospital for Women, 11, Bentinck street, Cavendish square, W.

1890*† Taylor, John William, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; Professor of Gynæcology, Birmingham University; 22, Newhall street, Birmingham. *Council*, 1900-2. *Trans.* 4.

1892 Taylor, William Bramley, M.R.C.S., 145, Denmark hill, S.E.

1894† Tench, Montague, M.D.Brux., L.R.C.P.Lond., Great Dunmow, Essex.

1890† Thomas, Benjamin Wilfred, L.R.C.P.Lond., Welwyn.

1887† Thomas, William Edmund, L.R.C.P.Ed., Ashfield, Bridgend, Glamorganshire.

1901 Thompson, Charles Herbert, M.D.Dubl., 133, Harley street, W.

1867*† Thompson, Joseph, L.R.C.P.Lond., Surgeon to the General Hospital and Hospital for Women, Nottingham; 1, Oxford street, Nottingham. *Council*, 1896-8. *Trans.* 1.

1905 Thomson, William B., M.D., B.Ch.Glasg., Holborn Infirmary, Archway road, Highgate, N.,

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1895† Tinley, William Edwin Falkingridge, M.B., B.S.Durh., Hildegard House, Whitby.

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1884 Travers, William, M.D., 2, Phillimore gardens, W.

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1886† Tuckett, Walter Reginald, M.R.C.S., Woodhouse Eaves, near Loughborough.

1865* Turner, John Sidney, M.R.C.S., Stanton House, 81, Anerley road, Upper Norwood, S.E. *Council*, 1893-4.

1891† Turner, Philip Dymock, M.D.Lond., Sudbury villa, Ryde, Isle of Wight. *Trans.* 1.

1897 Twynam, George Edward, L.R.C.P.Lond., 31, Gledhow gardens, S.W.

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1904† Van Buren, Asa Claude, M.B., B.S.Lond., Bristol General Hospital.

1903 Vaughan, Ethel May, M.D., B.S.Lond., 21, Upper Wimpole street, W.

1874* Venn, Albert John, M.D., 3, Hanover court, Hanover square, W.

1873* Verley, Reginald Louis, F.R.C.P.Ed., Constitutional Club, W.C.

1903† Vincent, George Fourquemin, F.R.C.S.Edin., Rozelle, Maybury road, Woking.

1900* Vincent, Ralph Henry, M.D., B.S.Durh., 1, Harley street, W.

1894† Wagstaff, Frank Alex., L.R.C.P.Lond., Saffron Walden, Essex.

1898† Walker, Alfred, M.D., B.C., M.A.Cantab., 12, Lingfield road, Wimbledon.

1866*†Walker, Thomas James, M.D., Surgeon to the General Infirmary, Peterborough; 33, Westgate, Peterborough. *Council*, 1878-80.

1901† Wallace, Arthur John, M.D.Edin., Surgeon to the Hospital for Women, Liverpool; 1, Gambier terrace, Liverpool.

Elected

1870 Wallace, Frederick, M.R.C.S., L.R.C.P., Foulden Lodge, Upper Clapton, N.E. *Council*, 1880-2.

1893† Walls, Willlam Kay, M.B.Lond., 14, St. John street, Manchester.

1879*†Walter, William, M.A., M.D., Surgeon to St. Mary's Hospital, Manchester; 20, St. John street, Manchester.

1867*†Walters, James Hopkins, M.R.C.S., Surgeon to the Royal Berkshire Hospital; 15, Friar street, Reading, Berks. *Council*, 1884-6. *Trans.* 1.

1898*†Ward, Charles, F.R.C.S.I., M.R.C.S.Eng., Pietermaritzburg, Natal, S. Africa.

1898† Watson, C. R., M.D.Brux., 5, Mount Ephraim road, Tunbridge Wells.

1884† Waugh, Alexander, L.R.C.P.Lond., Midsomer-Norton, Bath.

1894† Webb, John Curtis, M.A., M.B., B.C.Cantab., 6, Bina gardens, S.W.

1905† Webster, Charles George, Capt. I.M.S., L.R.C.P.&S.Ed., Madras.

1901† Weekes, Henry Holman, M.D.Brux., L.R.C.P.Lond., 21, Kidbrook park road, Blackheath, S.E.

1891† Wellesley-Garrett, Arthur Edward, L.R.C.S. & L.M.Ed., 6, Grosvenor hill, Wimbledon.

1888*†Weston, Joseph Theophilus, M.D.Brux., Civil Surgeon, Hissar, Punjab (care of Messrs. Thacker, Spink, and Co., booksellers and publishers, Government place, Calcutta).

1890* Wheaton, Samuel W., M.D.Lond., Physician to the Royal Hospital for Children and Women; 10, Rastell avenue, Streatham hill, S.W.

1902† White, Clement, M.B., B.C.Cantab., Star hill, Rochester.

1903† Whitehouse, William H., M.D.Durh., Keston House, Aston road, Birmingham.

1902† Whitelocke, Richard Henry A., M.B., C.M.Edin., 6, Banbury road, Oxford.

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1901† WIGG, HENRY HIGHAM, M.D.Brux., L.R.C.P., F.R.C.S. Edin., 8, North terrace, Adelaide.

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1903 WILLEY, FLORENCE ELIZABETH, M.B., B.S.Lond., Ia, Devonshire street, Portland place, W.

1904† WILLIAMS, EDWARD COLSTON, M.D., B.S.Lond., 175, Brownlow hill, Liverpool.

1899 WILLIAMSON, HERBERT, M.A., M.B., M.R.C.P., Assistant Obstetric Physician, Royal Hospital for Women and Children; 84, Wimpole street, W. *Trans.* 2.

1898† WILSON, CLAUDE, M.D.Edin., Belmont, Church road, Tunbridge Wells.

1892† WILSON, THOMAS, M.D., B.S.Lond., F.R.C.S., Assistant Obstetric Physician at the General Hospital, Birmingham; 87, Cornwall street, Newhall street, Birmingham. *Council*, 1906. *Trans.* 3.

1901† WILSON, THOMAS GEORGE, M.B., Ch.M.Sydney, F.R.C.S. Edin.; 296, Ward street, North Adelaide, South Australia.

1900† WINGATE, WILLIAM WARBURTON, M.B., B.C.Cantab., 60, St. Andrew's street, Cambridge.

1886† WINTERBOTTOM, ARTHUR THOMAS, L.R.C.P.Ed., c/o H. R. D. Pearson, Esq., King Island, Tasmania.

1877*†WINTLE, HENRY, M.B., 33, Strawberry High road, Twickenham.

1893 WISE, ROBERT, M.D.Edin., 290, Ivydale road, Nunhead, S.E.

1887† WITHERS, ROBERT, M.R.C.S., Stenteford Lodge, Spencer terrace, Lipson road, Plymouth.

1890 WORNUM, GEORGE PORTER, M.R.C.S., 58, Belsize park, Hampstead, N.W.

1904† WORTHINGTON, RICHARD, M.B., B.C.Cantab., Gordon road, Lowestoft.

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1876† Worts, Edwin, M.R.C.S., L.R.C.P., 6, Trinity street, Colchester.

1887† Wright, Charles James, M.R.C.S., Senior Surgeon to the Hospital for Women and Children, Leeds; Professor of Midwifery to the Yorkshire College; Lynton Villa, Virginia road, Leeds. *Council*, 1903-5.

1888*†Wyatt-Smith, Frank, M.B., B.C.Cantab., British Hospital, Buenos Ayres.

1882* Young, Charles Grove, M.D., 10, Sheen Gate gardens, East Sheen, S.W.

Number of Fellows 595

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The Society is not as a body responsible for the facts and opinions which are advanced in the following papers and communications read, nor for those contained in the abstracts of the discussions which have occurred at the meetings during the Session.

20, Hanover Square, W.

LIBRARY AND MUSEUM,

20, Hanover Square, W.

Hours of attendance: Monday to Friday, 1.30 p.m. to 6 p.m. Saturday, 9.30 a.m. to 2 p.m.; and in the evenings on which the Society meets, from 7.15 p.m. to 7.45 p.m.

AGNES HANNAM,
Secretary and Librarian.

JANUARY 4th, 1905.

Edward Malins, M.D., President, in the Chair.

Present—42 Fellows and 4 visitors.

Mary H. Frances Ivens, M.B., M.S.Lond.; Thomas Rose, M.R.C.S., L.R.C.P.; Lionel Gordon Hopkins, M.B.Lond.; William B. Swete-Evans, M.A.Cantab., L.R.C.P., were admitted Fellows of the Society.

The following gentlemen were elected Fellows of the Society: Lionel Gordon Hopkins, M.B.Lond.; George Burnett Currie, M.D.Aber., D.P.H.; William B. Swete-Evans, M.A.Cantab., L.R.C.P.; Daniel E. Anderson, M.B.Lond., M.D. Paris; Robert Humphrey Marten, M.B., B.C.Cantab.; Rhys Basil Rees, L.S.A.Lond.; J. Reginald Fuller, M.D.Durh., M.B., B.S.Durh.; Martin James Richardson, M.B., C.M.Edin.

A CASE OF VAGINAL HYSTERECTOMY IN THE PUERPERIUM FOR SEPSIS DUE TO SUPPURATION OF MYOMA.

Shown by Dr. Arnold W. W. Lea.

Hysterectomy has been performed for puerperal septicæmia arising from many causes, but its value and limitations can only be defined after a study of the local and general conditions present in each case. Hitherto,

great difficulty has been met with in laying down the precise indications for operation. In the following instance suppuration of a small myoma was the cause of the sepsis, and in these cases, presenting a definite local focus of infection, good results may be reasonably anticipated from the operation.

In a recent review by Christeanu, 'Revue de Gynécologie,' 1904, six cases of operation for suppurating myomata after delivery are recorded. Of these, three recovered and three died.

The patient, aged 39, primipara, was delivered of a macerated full-term fœtus on September 27th, 1904. She had always enjoyed good health, and had been married eleven years without any previous pregnancy. Labour was tedious, owing to uterine inertia. The membranes ruptured spontaneously. The liquor amnii was very offensive. The fœtus was delivered naturally, but the placenta was removed by hand. A uterine douche was given after delivery. The temperature was over 101° at the time of delivery, and constant pyrexia was present for fourteen days, the temperature varying from 100° to 102°. On the fourteenth day the temperature rose to 103°, and phlebitis developed in the left leg. On the twentieth day, as the pyrexia continued, and the uterine discharge was offensive, curettage was performed without any beneficial results. The pyrexia continued for a fortnight, with occasional rigors. The uterine discharge ceased almost entirely.

The patient was first seen on November 7th, 1904. Her general condition was good, the pulse varying from 90 to 110. The temperature rose each night to 102°–103°. The abdomen was normal.

Bi-manually the uterus was bulky and movable. The fundus was irregular and a definite rounded mass was felt, fixed to the uterus and slightly tender. The appendages were apparently normal. There was no peritonitis. The uterine cavity measured 3½ inches in length. A purulent discharge was present at the cervix.

A diagnosis of *infected myoma of the uterus* was made,

and operation advised. This was not at first accepted, but a week later, as the patient was evidently becoming worse, it was decided to remove the uterus and tumour *per vaginam.*

The operation was performed seven weeks after delivery. The uterus was very soft and tore readily. It was removed by means of ligature of the broad ligaments in sections. After its removal it was discovered that the tumour had separated from the uterus, a sloughing base being visible on the right side of the fundus. The right Fallopian tube was converted into a pyosalpinx, and surrounded by adhesions. The left appendages were also covered by lymph. Both appendages were removed. The hand was now introduced into the abdomen, and the tumour was discovered firmly adherent to the great omentum. This and the tumour, which was largely converted into an abscess sac, were brought into the vagina. A large portion of the omentum was removed with the tumour, and the base of the omentum, apparently healthy, was replaced. The pelvis was irrigated with saline solution, and a glass vaginal drainage-tube inserted.

The patient bore the operation well, but remained very ill for six days. There was no peritonitis, but the temperature varied from 100° to 103°, and the pulse from 100 to 160 per minute. The pelvis was flushed out with saline solution through the tube each alternate day. On the seventh day the pulse fell below 100, and the temperature became practically normal. The patient made a complete recovery.

Cultures of the pus in the tumour showed the presence of streptococci and *B. coli commune,* evidently a mixed infection.

Description of specimen.—The uterus is well involuted, measuring $3\frac{1}{4}$ inches in length. On section the mucous membrane is reddened and soft, and over the cervix covered with purulent lymph. The muscular wall is soft, but shows no infiltration with pus. The peritoneal covering is smooth, except for an area on the right side of the

fundus, the site of a pedunculated myoma. The tumour itself is largely converted into a shell of dense infiltrated fibro-myomatous tissue containing pus, and firmly adherent by its upper surface to the great omentum. The right Fallopian tube is enlarged and shows purulent salpingitis. The right ovary is covered with recent peritoneal adhesions, but is otherwise normal. The left Fallopian tube and ovary are covered by peritoneal exudation, but are otherwise normal.

Mr. Malcolm said that some years ago * he had exhibited to the Society a uterus with two fibroid tumours which he had removed a week after a miscarriage in the sixth month of pregnancy. He operated because from the third to the sixth day the temperature steadily rose to 103·8° F., and there seemed to be no reasonable prospect of improvement. One of the fibroid growths was in the anterior wall; the other, in the posterior wall, was smaller, about the size of a large orange. It was of an ashen-grey colour, quite different from the anterior one, which was of a healthy red hue. It was supposed to be undergoing necrotic changes, and this growth had been very tender before the operation. The patient made a good recovery. The speaker asked the writer of the communication if he could say whether the papers quoted included many cases of operation for uncomplicated inflammatory disease of the uterus and whether the results were good in such cases.

Dr. Russell Andrews mentioned a case in which he performed abdominal hysterectomy three days after delivery on account of pyrexia and pain due to the presence of a fibroid, as large as an adult head, which was undergoing central necrosis. The patient made a good recovery. He agreed with Dr. Arnold Lea that the vaginal route was to be preferred in such cases if the fibroid was not too large.

Dr. Boxall said that even removal of an infected uterus often failed to cut short the septic processes and to cure the patient. *Post-mortem* examinations of women who had succumbed to puerperal sepsis showed why in the great majority of cases this result was only to be expected. For it rarely happened that the disease was limited to the uterus, and it was obvious that early in the course of the illness the venous and lymphatic plexuses had become involved and that other foci of infection had formed outside the uterus altogether. Under these circumstances the source of the mischief could not be completely got rid of even by opening the abdomen and removing the uterus; as a consequence the septic infection continued to spread and a fatal result frequently followed.

* 'Obstet. Soc. Trans.,' 1894, p. 200.

TORSION OF THE PEDICLE OF A HYDROSALPINX.

Shown by Dr Herbert Williamson.

This specimen was sent to me by Dr. Maclaren, of Carlisle, who has furnished me with the following details.

The patient, an unmarried girl aged 18, was in good health until December, 1903. Since that time the periods have been scanty, and menstruation has been painful. On June 7th, 1904, she was suddenly seized with an attack of severe abdominal pain, at first localised in the right iliac fossa, later becoming more diffuse. Vomiting occurred, and the abdomen became distended. Two days later she was admitted to hospital, and Dr. Maclaren removed, by abdominal operation, the tumour which I show to-night.

The specimen consists of the ovary and tube of the right side. The ovary is of natural size and shape, deeply congested, but shows no other signs of disease. The tube is greatly distended, the diameter of its lumen increasing gradually from its uterine end to a point near its fimbriated extremity, where it suddenly becomes wider, exhibiting the retort-shape so characteristic of a hydrosalpinx. The walls are thickest at the uterine end, gradually becoming thinner towards the distal part. The colour of the specimen is deep maroon, in places almost black from effused blood.

The tube is bent upon itself at a point four inches from its fimbriated end; its general shape resembles that of a horse-shoe, and near its uterine attachment axial rotation has occurred. The tube has undergone three complete twists in the direction opposite to that in which the hands of a watch move. By this twisting the lumen has been entirely obliterated, and the torsion has been so great that in the immediate neighbourhood of the twist the tissues have been rendered almost bloodless. The fimbriated end is completely closed, and no dimple marking the original site of the ostium can be detected.

The contents of the cyst consisted chiefly of blood. The inner surface of the wall is smooth, and presents none of the longitudinal ridges seen in the specimen figured by Bell in Vol. V. of the 'Journal of Obstetrics and Gynæcology,' p. 520.

Torsion of the pedicle of a hydrosalpinx occurs only rarely, but by a curious coincidence three specimens have come into my hands within the last three months.

SECTIONS ILLUSTRATING THE STRUCTURE OF THREE DIFFERENT TYPES OF URETHRAL CARUNCLES.

Shown by Dr. Herbert Williamson.

In a paper recently published by Dr. Wilfred Attlee and myself in the 'Journal of Obstetrics and Gynæcology '* we gave an account of some researches we had recently made upon the structure and origin of urethral caruncles. To-night I show three sections illustrating the structure of types of caruncle we have there described. Caruncles may be grouped into two main classes, (1) Granulomata, (2) New-growths.

The granulomata (Section 1) arise as the result of urethral infections, and spring from the interior of the large cyst-like dilated gland spaces so frequently found just within the meatus. They consist of masses of granulation tissue covered by a layer of squamous epithelium. They are frequently, but not invariably, of gonococcus origin. Their structure is well illustrated in the section I have placed under the microscope.

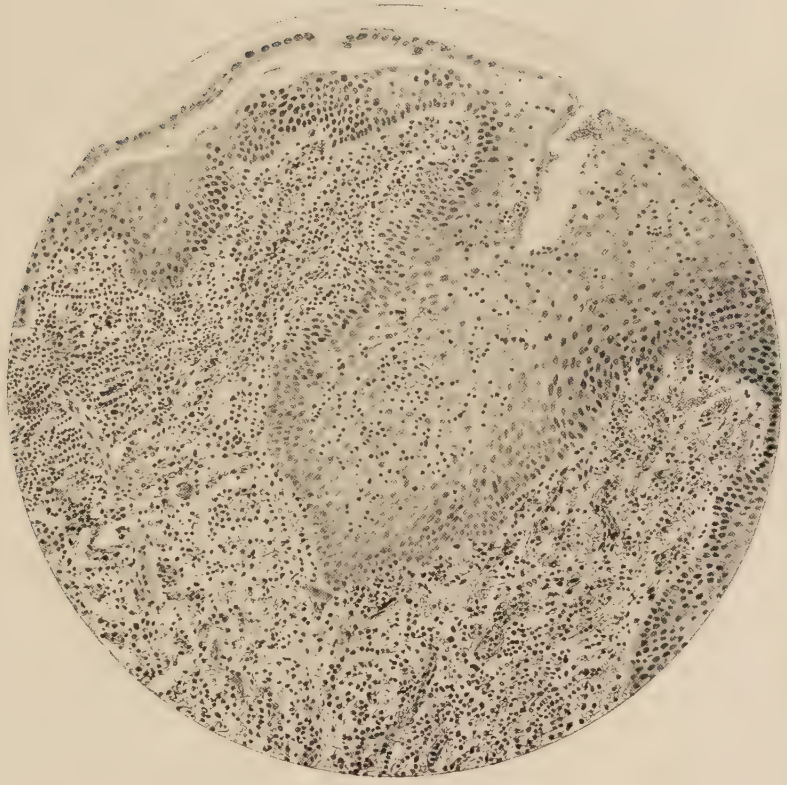
The new-growths are more complex in their structure. Under normal conditions we find that the structures bounding the meatus consist of four tissues: (1) a covering of epithelium of the squamous or transitional type;

* A Study of Certain Morbid Conditions of the Meatus Urinarius in the Female, 'Journ. Obstet. and Gynæcol.,' Nov., 1904.

DESCRIPTION OF PLATE I,

Illustrating Dr. Williamson's specimens of Urethral Caruncles.

Section of a caruncle composed of granulation tissue, and covered on the surface by squamous epithelium.



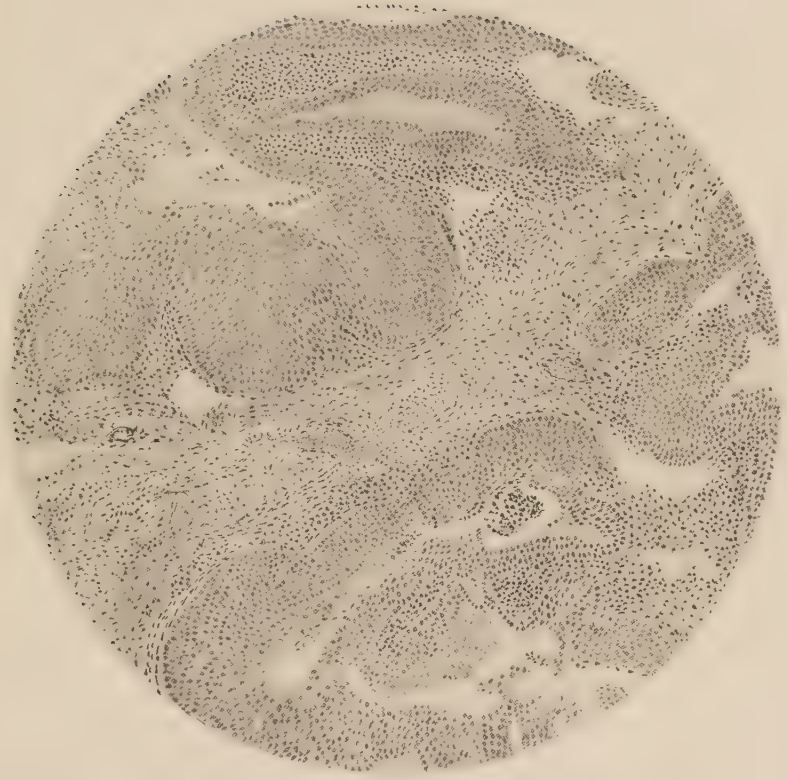
Illustrating Dr. Herbert Williamson's sections of the structure of three different types of urethral caruncles.

Adlard & Son, Imp.

DESCRIPTION OF PLATE II,

Illustrating Dr. Williamson's specimens of Urethral Caruncles.

Section of a caruncle composed chiefly of glandular tissue.



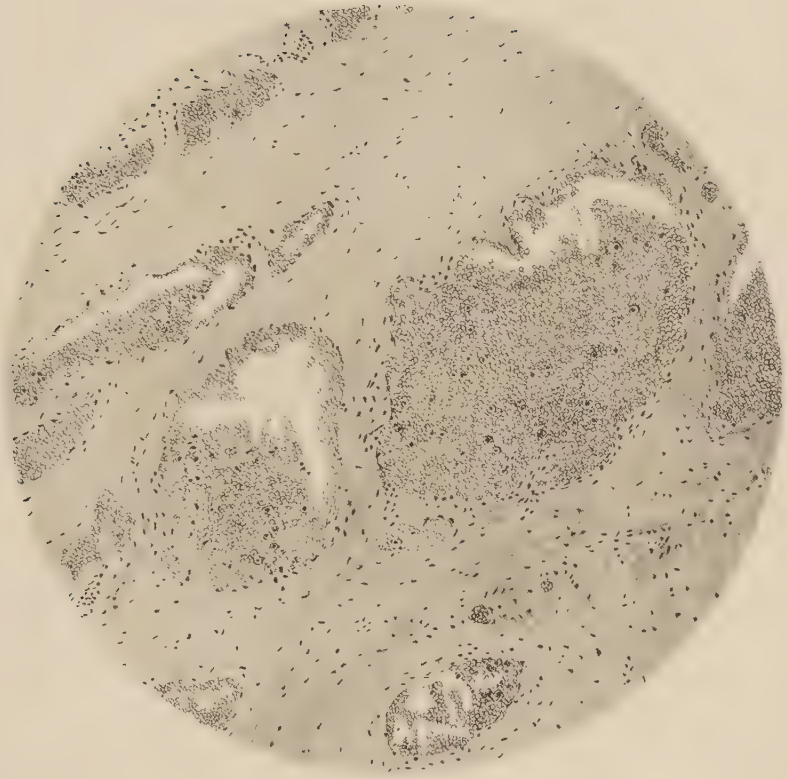
Illustrating Dr. Herbert Williamson's sections of the structure of three different types of urethral caruncles.

Adlard & Son, Imp.

DESCRIPTION OF PLATE III,

Illustrating Dr. Williamson's specimens of Urethral Caruncles.

Section of a caruncle composed of dense fibrous tissue in which are a large number of dilated vascular spaces.



Illustrating Dr. Herbert Williamson's sections of the structure of three different types of urethral caruncles.

Adlard & Son, Imp.

(2) a groundwork of connective-tissue fibres; (3) large vascular spaces; (4) peri-urethral glands. In a urethral caruncle we usually find all these tissues, but the proportions in which they are present vary enormously; sometimes the tumour consists almost entirely of vascular spaces, sometimes chiefly of peri-urethral glands. All contain fibrous tissue, and all are covered on the surface by epithelium, except where this has disappeared as the result of secondary changes.

Section 2 consists chiefly of peri-urethral glands, and may be called an adenoma. The peri-urethral glands in the female are the homologue of the prostate in the male, and this tumour is analogous to the well-known prostatic adenoma of the male.

Section 3 is part of a tumour consisting chiefly of large vascular spaces separated from one another by dense connective tissue, and is an angioma.

Both these tumours were covered on the surface by squamous epithelium which exhibited a marked tendency to proliferation. These two specimens are at opposite poles of a series; commonly the tumours are of a mixed character, consisting of a proliferating surface epithelium, fibrous tissue, vascular spaces, and peri-urethral glands. That is, they consist of all the tissues which constitute the walls of the meatus.

We have employed the most recent methods of histological research, but have entirely failed to find any trace of nerves in the tumours we have examined.

Dr. Peter Horrocks thought that several types had been included by the author which were not ordinarily meant by the term "urethral caruncle." The typical urethral caruncle was a bright red, small, pedunculated body, exquisitely sensitive, as a rule, and composed largely of blood-vessels with loose connective tissue. Having no muscular fibres to contract, they bled easily. He could not understand the absence of nerve-fibres with so much sensitiveness, and he could not help feeling that the view hitherto held, that they contained nerves, was the correct one. These bright-red vascular urethral caruncles had nothing to do with gonorrhœa. The small fleshy growths about the meatus associated with gonorrhœa were pale flabby-looking

things easily distinguished from true urethral caruncles. He supposed they would be the granulomata described by the author. True urethral caruncles had to be distinguished from these pale venereal granulations, and from prolapse of the urethral mucous membrane, and from congenital splittings of the meatus, etc.

Dr. Boxall said that the question of liability to recurrence of individual cases of caruncle was a point awaiting a solution. He asked Dr. Williamson whether he could state definitely in which of the varieties of caruncle described by him recurrence was likely to recur after complete removal.

Dr. Herman had some years ago, in a clinical lecture published in 'International Clinics,' analysed forty-one cases of urethral caruncle, and had been struck by the frequency with which the patients complained of profuse vaginal discharge. The observations of Drs. Williamson and Attlee explained this.

AN ABSCESS IN A CORPUS LUTEUM.

Shown by Mr. Malcolm.

Mr. Malcolm showed an ovary removed from a very delicate-looking woman, aged 24, married 2½ years, and whose first child was delivered on February 23rd, 1904. She stated that the labour was long, and that the passages were dilated by the medical attendant's hand, instruments not being used. She was very well for a week, and then had a high temperature for four days, rising, she said, on one occasion to 106°. After three weeks she was able to get up, but from this time she had constant pain in the left groin. She was admitted to the Samaritan Free Hospital in August, but after consultation was sent out for further observation. Mr. Malcolm saw her in October, and diagnosed an enlarged ovary or Fallopian tube on the left side. On October 18th he opened the abdomen, and found the left Fallopian tube occluded and adherent. The ovary was enlarged, and under the peritoneum over the left side of the bladder, extending backwards into the base of the broad ligament, there was a flat, diffuse mass of indurated

tissue, which could not possibly be removed, and which did not seem to contain fluid. The ovary was adherent to this mass at its lower end. The ovary and tube were removed. In the upper part of the ovary there was a small cyst containing red serous fluid, and which burst during the operation. In its lower part, near the hard mass above described, there was an abscess measuring about half an inch in diameter, which Mr. Handley had kindly reported on as follows :

" No tubercle bacilli were found in the pus from the abscess. It showed here and there a few degenerate and badly stained bacilli, not unlike the *Bacillus coli communis*. The pus-cells were of two types ; many of them were evidently leucocytes, but there were also numerous large faintly-stained nuclei, whose protoplasm had disappeared. All the pus-cells were in an advanced state of degeneration. The abscess, though smooth internally, showed on section the convoluted wall characteristic of a corpus luteum. The inner layers of the wall consisted of large cells, with swollen and slightly stained nuclei, imbedded in a scanty fibrous matrix, and infiltrated with leucocytes. The outer layer consisted entirely of fibrous tissue. The intermediate layer presented a transition between the cellular and the fibrous layer. These appearances made it quite clear that the abscess arose in a corpus luteum."

The right ovary and tube were healthy. This patient had a painful enlargement of the proximal joint of the left great toe, of about four years' standing, and which may possibly be tubercular.

When the patient left the hospital, she had a swelling on the left side of the pelvis, which might easily be mistaken for an enlarged left ovary, but which seemed to be rather smaller when last examined, at the beginning of December.

A CANCEROUS UTERUS.

Shown by Mr. Malcolm.

Mr. Malcolm also showed a uterus, with a mass of columnar-celled cancer on its inner surface, which he removed from a patient aged 48, on July 17th, 1904. The interest of the specimen lay in the fact that on April 17th, 1903, he removed a rapidly growing and extremely adherent tumour of the left ovary, which rose as high as the navel, and a smaller growth of the right ovary. The larger tumour was examined by Mr. Targett and described by him as a carcinoma of a columnar-celled type. The uterus was slightly enlarged at this time, but the patient was so feeble that after consultation with Dr. Champneys it was deemed wiser not to remove it. The patient's health improved very much for fourteen months, and then she had a hæmorrhage. On July 17th, 1904, the specimen was removed by abdominal section, and it was remarkable that no adhesions of any kind were discovered in the peritoneal cavity. The patient's health was as good as could be wished for, and Mr. Malcolm asked for the experience of Fellows as to the prospects of future immunity. In his own practice he had never removed an ovarian tumour which was declared to be cancerous by a microscopist without a return of the disease taking place within three years.

AN INVESTIGATION INTO THE CAUSATION OF PUERPERAL INFECTIONS.

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AND

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(From the Bacteriological Department of the Middlesex Hospital.)

(Received December 29th, 1904.)

The writers have examined the contents of the uterus—

(1) In twelve cases in which the puerperium was normal—examination being made from the third to the tenth day after normal labour, and

(2) In fifty-four cases of either miscarriage or labour at full term in which fever occurred.

The writers have also made a bacteriological examination of the cervical secretion in thirty non-pregnant women who were suffering from vaginal discharge.

Method of obtaining Contents of Uterus for Examination.

A large glass tube, of the shape and dimensions of an intra-uterine douche tube, served as a sheath for a wire with a plug of sterilised cotton wool at its extremity. The upper end of the glass tube was covered with a cap of cotton wool. After sterilisation of the apparatus, the cap of cotton wool was dipped in a mixture of melted paraffin and thymol. After the glass tube had been introduced into the lower part of the uterus the cotton wool cap was withdrawn by means of a piece of string, the wire carrying the sterilised plug of cotton wool was then pushed up to the fundus, and a sample of the contents of the uterus thus obtained.

Result of Bacteriological Examinations.

(1) *Contents of the uterus in the normal puerperium.*—In all twelve cases examined the contents of the uterus proved sterile of bacteria (Table I).

Others have obtained similar results; but others, again, have found certain bacteria in the uterus in the course of normal puerperia.

Vogel believes that towards the end of the puerperium certain bacteria may invade the uterus without producing any symptoms.

The matter cannot be regarded as determined one way or another. The series of cases examined by the writers is too limited to be taken as a proof of the sterility of the uterus in the normal puerperium, but they consider that the weight of previously published evidence is in favour of sterility.

(2) *Contents of the uterus in cases of puerperal fever, and in fever after miscarriage.*—Fifty-four cases in all were examined, six of miscarriage and forty-eight of labour at full term (Table II).

Clinically the cases could be separated into three groups—

(A) Cases with severe symptoms, terminating in death.

(B) Cases with severe symptoms, recovery.

(C) Slight fever cases (temperature not exceeding 102° F.).

Out of these fifty-four cases the uterus was apparently sterile of bacteria in fifteen; bacteria of one kind or another were found in the remaining thirty-nine.

	Sterile	Bacteria found.	Total.
Group A.—Miscarriage	—	2	
Labour at full term	—	12	14
Group B.—Miscarriage	—	4	
Labour at full term	5	17	26
Group C	10	4	14
			54

The bacteria found were:—

	Cases.	Total.
Streptococci, in pure culture	10	
„ with other bacteria	15	25
Micrococcus pneumoniæ, in pure culture	1	
„ „ with other bacteria	3	
? „ „ (not fully identified)	2	6
Staphylococcus pyogenes aureus		1
„ „ *albus*		3
A. diplococcus (—Gram.), not the gonococcus		2
A. diphtheroid bacillus		2
		39

(See Table III.)

Examination of the Cervical Secretion in Non-pregnant Women with Vaginal Discharge.

Thirty cases were examined (Table IV). Of these:

Cultures of various bacteria were obtained in	16
Bacteria were demonstrated by microscopic examination but attempts at culture failed in	3
Attempts at culture failed and no bacteria were seen on microscopic examination in	9
Attempts at culture failed and no microscopic examination was made in	2
	30

Amongst the bacteria found in sixteen cases were *Staphylococcus pyogenes aureus, S. p. albus, Micrococcus gonorrhœæ,*

Bacillus coli communis, a "diphtheroid" bacillus, a diplococcus (— Gram, but not *M. gonorrhœæ*), and an encapsulated diplococcus (+ Gram ? *Micrococcus pneumoniæ*).

General Results of Bacteriological Examination.

The general results of the bacteriological examination which have been made are—

(1) Streptococci were present in the uterus in twenty-five out of thirty-nine cases in which cultures from the contents of the uterus were obtained.

(2) Streptococci were present in the vagina in two cases out of seventeen in which the contents of the uterus were apparently sterile of bacteria.

(3) Streptococci were present in the uterus in twenty-five out of forty cases of severe fever, and in the vaginal secretion in two out of five similar cases in which the contents of the uterus were sterile of bacteria.

(4) Out of fourteen cases of "slight" fever the contents of the uterus were sterile of bacteria in ten, and in four cultures of bacteria were obtained, but not a streptococcus.

(5) Of the fifteen cases in which the contents of the uterus were sterile of bacteria, a marked proportion were primiparæ presenting considerable lacerations of the cervix or perineum.

(6) The presence of *Micrococcus pneumoniæ* was proved in four of the cases, and in two others it was probably present.

(7) In the present series the absence of *M. gonorrhœæ* and anaerobic organisms was noticeable.

(8) In the series of cases in which the cervical secretion was examined proof was obtained of the presence in the cervical canal of non-pregnant women of bacteria, which had also been found in puerperal infections of the uterus; but in no case were streptococci found.

The Pathology of Puerperal Infections.

I. Puerperal fevers may be caused by—

(*a*) Primary infection of lacerations of the vaginal walls or perineal tissues (with secondary infection of the uterus sometimes).

(*b*) Primary infection of the contents of the uterus or of the placental site.

II. The processes concerned in the production of puerperal fevers may be classified as—

(*a*) Primary, vaginal, or perineal infection. { Local infection + toxæmia; Local infection + toxæmia, + General infection.

(*b*) Primary infection of uterus. { Local infection + toxæmia; Local infection + toxæmia, + General infection.

Conclusions.

(1) Puerperal fever when bacteriological proof of the nature of the infection is wanting should be treated as being due to streptococcic infection.

(2) Active curetting of the uterus in puerperal infections is not to be advised.

(3) The most satisfactory treatment for streptococcic infections of the uterus is comprised in the administration of an appropriate antistreptococcic serum, and digital exploration and clearing out of the contents of the uterus, followed by intra-uterine douches.

(4) The fever following a streptococcic infection of the uterus may be transient, and subside within forty-eight hours without any special treatment—a fact to be remembered when dealing with the conveyance of infection.

(5) Autogenetic infection is probably sometimes a cause of puerperal fevers, but the use of vaginal douching before labour with the view of obtaining asepsis is not advisable.

(6) In this series of cases bacterial invasion of the uterus has always been marked by severe symptoms with abrupt rise of temperature to 102° F., or higher.

(7) In the majority of the cases in which the contents of the uterus were sterile, and there were severe lacerations of the cervix or perinæum, the symptoms were very much less severe, and the temperature did not rise to above 102° F.

The bacteriology of puerperal infections has been the subject of many special investigations since the publication

in 1880 of Pasteur's classical paper on the occurrence of streptococci in the blood and discharges of patients with puerperal fever; but inasmuch as the precise causation of the various forms of puerperal fever cannot yet be said to have been completely worked out, and as there have been certain discrepancies between the published results of different workers in this field of pathology, we commenced some four years ago a systematic investigation into the causes of fever following on either miscarriage or labour at full term. And whilst our investigation is by no means completed, yet we think that some of the results which we have already obtained are sufficiently definite to justify us in making the present communication to the Obstetrical Society.

The Cases Investigated.

In the first place it will be well to refer to the general character of the material with which we have worked, and to the methods which we have followed in our investigation.

The results which we shall quote were obtained from the examination of 54 cases in which fever, slight or severe, occurred after either miscarriage or labour at full term, 6 of the cases coming under the former description. In each one of the 54 cases a detailed bacteriological examination of the contents of the uterus was made, and all bacteria present on our primary culture tubes were isolated in pure culture and studied. In nearly all of these cases a similar examination of the secretion found in the vagina was also made.

With the view of obtaining certain other information we have made a complete bacteriological examination of the contents of the uterus in 12 cases after normal labour and during a normal puerperium. We have also examined the secretion in the cervical canal of 30 women who showed no signs of pregnancy, being selected from amongst patients who presented themselves at the Out-Patient Department of the Chelsea Hospital for Women complaining of vaginal discharges.

Method of Bacteriological Examinations.

In the cases in which we examined the contents of the uterus the following method was employed as a rule. A glass tube shaped like an ordinary intra-uterine douche tube served as the sheath of a piece of stout copper wire which carried a plug of sterilised cotton wool at its end. The top opening of the glass tube was plugged with cotton wool, which was tied back over the glass, so as to form a sort of cap. The string which was used for tying on this cap was wound once or twice round the glass tube, and by pulling on it the cotton wool cap could be withdrawn after the upper end of the glass tube had been introduced within the cervical canal. The lower end of the glass tube was closed by a plug of cotton wool packed round the copper wire. The apparatus was then placed in a metal case, and sterilised by heat. After sterilisation the end of the glass tube with its cap of cotton wool was dipped into a heated mixture of hard paraffin, vaselin, and thymol, and as soon as the mixture had set the apparatus was replaced in its sterilised metal case, where it remained until used.

In taking a sample of the contents of the uterus, the glass tube was introduced well within the os externum, the cotton wool cap was then withdrawn from the uterus by means of the attached string, and the copper wire with its plug of sterilised cotton wool was pushed forward until it touched the fundus. The wire was then withdrawn well within its sheath, and the glass tube removed from the patient. The upper end of the tube was then plugged and flamed, and cultures were made in the laboratory as soon as practicable.

From each "swab" of cotton wool cover-glass specimens were prepared and examined, and the following series of culture tubes were inoculated: 2 pepton-agar tubes, 2 glycerin-agar tubes, 2 tubes of inspissated horse serum, 2 tubes of nutrient gelatin, and 2 tubes of pepton-beef-broth.

Of these tubes three were incubated anaerobically, tubes of broth and agar at 37° C. and a gelatin tube at 20° C.; the remaining tubes were incubated aerobically at 37° C., except the second gelatin tube, which was kept at 20° C. By making smear cultures successively over the surface of tubes of sloped media it was usually possible to isolate the various bacteria present in pure culture, but whenever necessary the growth obtained on these tubes was plated out.

In a few cases in which the examination was made some considerable time after delivery and in which it was not practicable to use the intra-uterine tube, an ordinary "swab" was passed into the uterus, after every possible precaution had been taken to avoid any contamination below the external os.

In order to anticipate criticism, we may point out that we did not, as a rule, prepare special culture media with the view of obtaining growths of *Micrococcus gonorrhœæ*. When attempting to isolate this organism from pus or from arthritic fluid, it is necessary to use some culture medium to which fresh human blood serum has been added; but under the special circumstances of the present investigation such media were not usually necessary, as in most cases the uterine discharge itself consisted mainly of blood. In certain cases the discharge from the uterus was purulent and without any obvious trace of blood, and in these cases *Micrococcus gonorrhœæ*, if present, would not have been obtained in culture. In some of our cases, then, there has been this possible source of fallacy to which we will refer again when dealing with certain cases in which the contents of the uterus appeared to be sterile of bacteria; we need only add now that in none of the 54 cases of puerperal fever did the microscopic examination of freshly prepared smears made from the discharge show intracellular cocci such as might on further examination have proved to be *Micrococcus gonorrhœæ*.

Examination of Cervical Secretion in non-Pregnant and of the Discharge found in the Vagina in some of the Puerperal Cases.

The cervical secretion in non-pregnant women was obtained in the majority of cases without the use of a speculum; the woman was placed in the semi-prone position, and the vagina being rendered patent, the secretion was taken by means of a "swab" of sterilised cotton wool mounted on a long wire. In the case of some of the nulliparous women, however, a Sims' speculum had to be used in order to obtain free access to the os. In this series of cases (Table IV), in addition to the set of culture-tubes used for the uterine discharge in the previous cases, smears of fresh human blood on sloped agar were used in order to insure a suitable medium for the growth of *M. gonorrhœæ*.

When examining the vaginal fluid from puerperal women every precaution was taken to get a true sample of the contents of the canal uncontaminated by vulval secretion.

Results of the Examination of the Contents of the Uterus in Normal Puerperia.

We commenced our investigation with the examination of the contents of the uterus in a short series of 12 cases in which the puerperium had up to the time of our examination been normal. In no case had the temperature up to the time of our examination risen above 99·6° F., and in none of the cases did any rise of temperature above that point occur subsequently.

The results of our examination of these cases are given in Table I, and it will be seen that in every case the contents of the uterus proved sterile of bacteria. In all of the cases sufficient blood was smeared out over the surface of the media inoculated to insure the growth of *M. gonorrhœæ* had that organism been present.

TABLE I.

Bacteriological Examination of Uterus in Normal Puerperia.

	Pregnancy.	Date after delivery on which examination was made.	Bacteriological examination of contents of uterus.	Bacteriological examination of secretion in vagina.
1	3rd	3rd day	Contents sterile	Sterile.
2	4th	„	„	No examination.
3	9th	„	„	„
4	1st	4th day	„	Sterile.
5	„	„	„	Culture of a diplococcus (— Gram) obtained.
6	„	„	„	No examination.
7	5th	„	„	„
8	3rd	6th day	„	Culture of *B. coli communis* obtained.
9	„	„	„	No examination.
10	4th	„	„	Culture of *Staphylococcus pyogenes albus* obtained.
11	2nd	9th day	„	Cultures of *Staphylococcus pyogenes albus* and *B. coli communis* obtained.
12	3rd	10th day	„	Sterile.

In 7 out of the 12 cases a bacteriological examination of the lochia, as found in the vagina, was also made. In 3 out of these cases no growth of bacteria occurred; in 1 case we obtained a pure growth of *B. coli communis*; in 1 case a pure culture of *Staphylococcus pyogenes albus*; in 1 case we found both these bacteria; and in the remaining case we obtained a pure culture of a diplococcus which did not stain by Gram's method, which grew freely on ordinary nutrient gelatin at a temperature of 20° C. without liquefying the medium,

and which we subsequently found in the contents of the uterus in 2 cases of puerperal fever and once in the cervical secretion of a non-pregnant woman.

Our results in this small series of 12 cases, are, therefore, in accordance with the conclusions of those who believe that the uterine cavity in the normal puerperium is sterile of bacteria. And, incidentally, our results were useful as a test of the efficiency of our method for obtaining a sample of the contents of the uterus free from any contamination by the lochial discharge in the vagina—a question of some importance when the results of our examination of the contents of the uterus in puerperal fever come under consideration.

We do not propose to attempt to weigh the relative value of work which has shown the sterility of the uterine contents in normal puerperia as against that which has given opposite results. We would only point out that practically every likely source of fallacy in this investigation works in one direction; faulty clinical methods in collecting the contents of the uterus and errors due to imperfect bacteriological technique tend alike to the production of bacterial growth on the culture media when the uterus itself is sterile. And, in short, in a matter of this kind, negative evidence must carry rather more weight than positive evidence, which is founded on the appearance of growth on the media inoculated.

Amongst those who have obtained growth from the contents of the uterus in normal puerperia are Doderlein and Winternitz, who examined the uterus in 250 "afebrile" cases and found bacteria present in 43.

	Day of puerperium on which the examination was made.				
	1st and 2nd.	3rd, 4th and 5th.	6th.	7th.	8th.
Uterus sterile .	2	3	27	10	30
Bacteria present .	0	2	2	5	6

	Day of puerperium on which the examination was made.						
	9th.	10th.	11th.	12th.	14th.	15th.	Total.
Uterus sterile .	52	39	34	8	1	1	207
Bacteria present	9	12	6	1	0	0	43

Vogel attempts to reconcile the contradictory results of different workers by the statement that the presence or absence of bacteria in the uterus has some relation to the stage of the puerperium at which the examination is made; he believes that in "afebrile" cases the uterine lochia are sterile during the earlier days, but that in the later days bacteria will be found not infrequently. Vogel examined the contents of the uterus in two series of 15 cases each; in the first series of cases cultures from the contents of the uterus were attempted on the fourth day after labour, in the other series on the eighth or ninth day. The results were as follows:

	Cases examined.	Sterile.	Strepto-cocci found in	Other bacteria found in
Examined on fourth day	15	12	1	2
Examined on eighth or ninth day . .	15	5	2	8

The results obtained by Krönig must also be referred to. Krönig examined the uterine lochia of 63 "afebrile" puerperal women, and found bacteria present in 13, streptococci in 3, *Staphylococcus pyogenes aureus* in 1, *M. gonorrhœæ* in 4, *B. coli communis* in 1, and anaerobic bacteria in 6.

The Contents of the Uterus in Cases of Puerperal Fever.

We may next proceed to consider the results of our examination of the contents of the uterus in cases of puerperal fever, together with some cases in which fever followed miscarriage. We have examined in all 54 such cases, as set forth in Table II, in which the cases are arranged in three series in accordance with their clinical severity:

Series A includes 2 cases of miscarriage and 12 cases of labour at full term, all terminating in death.

Series B includes 4 cases of miscarriage and 22 cases of labour at full term, in all of which the symptoms would

be described clinically as "severe" and in which recovery followed. In every case the temperature rose to 102° F., or higher.

Series C includes 14 cases of what would generally be termed "slight" fever after labour at full term. In none of the cases did the temperature exceed 102° F., and in all the rise of temperature, such as it was, constituted the main symptom of disease.

In order to prevent any misapprehension, we may explain how we arrived at this classification in series. After we had investigated our first 50 cases we arranged them in the three series under their respective numbers, and, having regard only to the clinical symptoms recorded, our classification thus far was made absolutely without reference to the bacteriological findings; and it was only after we had thus grouped our cases into three series that we arranged individual cases in each series in accordance with the respective bacteriological findings. After our 50 cases had been thus classified and arranged we examined 4 additional cases, 2 of which terminated fatally and 2 of which recovered after symptoms of extreme severity.

Before proceeding to the detailed consideration of the bacteriological findings in these 54 cases we may mention that a few of our cases came from the wards of a lying-in hospital (all these cases are included amongst *Series C*). Some of the cases were attended in the Obstetric Out-Patient Department of a general hospital, amongst patients of the poorest class, and frequently living under the most insanitary conditions; others of the cases occurred in the private practice of various medical practitioners who were so kind as to allow us to make the necessary examination. Taken on the whole, then, our cases may be said to be fairly representative of general obstetric practice, but including, perhaps, an unusually high proportion of cases of severe illness.

TABLE II.—CASES OF FEVER AFTER MIS-

A—Cases terminating in Death. B—Cases of Severe Fever

A—Cases terminat-

	Labour at full term, or miscarriage.	Age.	Bacteriological examination of uterus.	Bacteriological examination of vaginal discharge.	Date after confinement on which bacteriological examination was made.
1	Full term, 11th pregnancy	—	Streptococcus (pure culture)	No examination	During 6th week
2	Full term	—	Streptococcus (pure culture)	No examination	On 22nd day
3	Full term, 6th pregnancy	28	Streptococcus and *B. coli communis*	Streptococcus and *B. coli communis*	After death (cultures taken 13 hours after death)
4	Miscarriage (probably after an illegal operation), 3rd pregnancy	23	Streptococcus and *B. coli communis*	Streptococcus and *B. coli communis*	After death (cultures taken 12 hours after death)
5	Full term, 1st pregnancy	30	Streptococcus and *B. coli communis*	Streptococcus and *B. coli communis*	After death (cultures taken 18 hours after death)
6	Full term, 3rd pregnancy	—	Streptococcus, *B. coli communis*	Not examined	9th day
7	Full term, 6th pregnancy	—	Streptococcus, *B. coli communis*	Not examined	6th day
8	Premature labour, 4th pregnancy	33	Streptococcus, *B. coli communis*, and *Staphylococcus pyogenes albus*	*B. coli communis* and *Staphylococcus pyogenes albus*	10th day

CARRIAGE OR LABOUR AT FULL TERM.

with Recovery. C—Cases of Slight Fever with Recovery.

ing in Death.

Onset of symptoms after confinement.	Result.	
Fever commenced on 5th day	Death during 7th week after delivery	*History:* retained membranes; temperature 105° F., and offensive purulent discharge from cervix (6th week); symptoms of peritonitis and pleuritis before death. No special treatment. No examination after death.
Fever commenced on 7th day	Death	Uterus enlarged (22nd day); large sub-mammary abscess (containing streptococci in pure culture).
Fever commenced on 3rd day	Death on 6th day after delivery	*History:* high intermittent fever; "typhoid" condition and collapse. *Necropsy:* cultures taken from the heart-blood, spleen, and peritoneal sac all showed streptococci in pure culture.
Fever commenced 2nd day after miscarriage	Death on 6th day after miscarriage	*History:* miscarriage a few days before admission into hospital; admitted in "typhoid" condition and moribund, died before reaching ward. *Necropsy:* cultures taken from heart-blood, spleen, lungs, and peritoneal sac all showed both streptococci and *B. coli communis.*
Fever commenced on 7th day after labour	Death on 21st day after delivery	*History:* placenta prævia and post-partum hæmorrhage; thrombosis of left femoral vein with swelling of leg noticed on 7th day; high irregular fever and attacks of dyspnœa. *Necropsy:* cellulitis of left broad ligament; thrombosis of left common iliac vein. *Bacteriological examination:* cultures taken from the cavity of the uterus, from the vagina, and from the thrombus in the vein all showed both streptococci and *B. coli communis.*
Fever commenced on 2nd day	Death on 11th day after delivery	*History:* forceps used; lochia offensive, and temperature 104° F. (9th day). Anti-streptococcic serum used just before death. No examination after death.
Fever commenced on 2nd day	Death on 7th day after delivery	*History:* lochia offensive; temperature 104° F. (6th day); treatment, intra-uterine douching and exploration; anti-streptococcic serum used just before death.
Fever commenced on 7th day	Death on 14th day after delivery	*History:* premature labour a few days before admission into hospital; admitted after sudden attack of hemiplegia, high fever. *Necropsy* (8 hours after death): placental site necrotic, ulcerative endocarditis, cerebral embolism with meningeal effusion. *Bacteriological examination:* cultures taken from the heart-blood, spleen, and meningeal fluid all showed streptococci in pure culture.

Cases terminating in

	Labour at full term, or miscarriage.	Age.	Bacteriological examination of uterus.	Bacteriological examination of vaginal discharge.	Date after confinement on which bacteriological examination was made.
9	Full term, 5th pregnancy	34	Streptococcus, *B. coli communis*, and *Staphylococcus pyogenes albus*	Streptococcus, *B. coli communis*, and *Staphylococcus pyogenes albus*	15th day
10	Full term (? 8th month)	37	Streptococcus, *B. coli communis*, and another bacillus (anaerobic)	Not examined	3rd day
11	Full term, 1st pregnancy	24	*Micrococcus pneumoniæ*, *B. coli communis*, and *Staphylococcus pyogenes albus*	Not examined	10th day
12	Full term	—	*Micrococcus pneumoniæ*, *B. coli communis*, and *Staphylococcus pyogenes albus*	Not examined	8th day
13	Full term, 3rd pregnancy	—	Diplococcus (+ Gram) pure culture	Diplococcus (1) and *Staphylococcus pyogenes albus*	8th day
14	Full term	—	Diplococcus (− Gram) pure culture	Not examined	12th day

Death—continued.

Onset of symptoms after confinement.	Result.	
Fever commenced on 4th day	Death on 19th day after delivery	*History:* retained placenta, exploration and removal, lochia suddenly ceased; high intermittent fever and vomiting. *Necropsy* (6 hours after death): uterus enlarged and softened; uterine mucosa necrotic; peritonitis; spleen, liver, and kidneys engorged and softened; heart muscle softened; disseminated lobular pneumonia; excess of fluid in peritoneal sac. *Bacteriological examination:* cultures taken from the heart-blood, spleen, and peritoneal sac all showed streptococci in pure culture.
Fever commenced on 2nd day	Died on 5th day after delivery	*History:* Child, membranes, and placenta born before arrival of doctor; child dead, but movements noticed 5 days previously; temperature (2nd day) 104° F.; uterus explored and placental fragments removed; temperature (3rd day) 100° F.; vaginal discharge offensive; 102° F. (4th day); antistreptococcic serum given on 4th day; laceration of cervix and perineum. Patient had undergone an anterior nephrectomy 12 months previously; the operation wound had never quite closed, and was still discharging pus.
Fever commenced on 3rd day	Death on 15th day after delivery	*History:* contracted pelvis, delivery by forceps, temperature 103° F.–105° F. (10th day); vomiting; lochia offensive. *Necropsy* (incomplete): pelvic peritonitis and cellulitis of right broad ligament, portion of placenta retained, pleuritis, no pneumonia. (See "A Case of Primary Infection of the Puerperal Uterus by Diplococcus Pneumoniæ," Foulerton and Bonney, 'Obstet. Soc. Trans.,' 1903.)
Fever commenced on 6th day	Death on 9th day after delivery	*History:* patient was admitted into hospital on the 7th day; she could only talk in Italian, and little in the way of history could be elicited. *Necropsy:* placental site necrotic; cloudy swelling of kidneys, no pneumonia. *Bacteriological examination:* the same three species of bacteria isolated from the uterus during life, were obtained on cultures taken from the uterus after death. *Histological examination:* sections made through the placental site showed necrosis of the superficial layer of tissue, inflammatory infiltration below this, and numerous well-marked encapsuled diplococci.
Fever commenced on 7th day	Death on 14th day after delivery	*History:* Post-partum hæmorrhage, retained membranes; lochia natural, temperature 105° F. (8th day). No examination after death.
Fever commenced on 7th day	Died on 15th day after delivery	*History:* Forceps case; temperature 105° F. (12th day). No examination after death.

B—Cases of Severe

	Labour at full term, or miscarriage.	Age.	Bacteriological examination of uterus.	Bacteriological examination of vaginal discharge.	Date after confinement on which bacteriological examination was made.
15	Full term, 5th pregnancy	—	Streptococcus (pure culture)	Streptococcus (pure culture)	5th day
16	Full term, 8th pregnancy	—	Streptococcus (pure culture)	Streptococcus and *B. coli communis*	6th day
17	Full term	—	Streptococcus (pure culture)	Streptococcus and *B. coli communis*	6th day
18	Full term	—	Streptococcus (pure culture)	Streptococcus and *B. coli communis*	5th day
19	Full term, 4th pregnancy	—	Streptococcus (pure culture)	Streptococcus, *B. coli communis*, and *Staphylococcus pyogenes albus*	6th day
20	Full term, 1st pregnancy	—	Streptococcus (pure culture)	Streptococcus and *Staphylococcus pyogenes albus*	5th day
21	Full term, 1st pregnancy	—	Streptococcus (pure culture)	Not examined	8th week
22	Full term, 1st pregnancy	—	Streptococcus (pure culture)	Not examined	10th day
23	Full term, 4th pregnancy	—	Streptococcus and *B. coli communis*	Streptococcus and *B. coli communis*	7th day
24	Premature labour, 5th pregnancy	—	Streptococcus, *B. coli communis*, and *B. pyocyaneus*	*B. coli communis*	21st day
25	Full term, 6th pregnancy	—	Streptococcus and *Staphylococcus pyogenes albus*	Streptococcus, *B. coli communis*, and *Staphylococcus pyogenes albus*	3rd day
26	Full term, 1st pregnancy	—	Streptococcus and *Staphylococcus pyogenes albus*	Streptococcus, *Staphylococcus pyogenes albus*, and *B. coli communis*	6th day
27	Premature labour, 2nd pregnancy	—	Streptococcus and *Staphylococcus pyogenes albus*	Streptococcus, *Staphylococcus pyogenes albus*	4th day
28	Full term, 6th pregnancy	—	Streptococcus and *Staphylococcus pyogenes albus*	Not examined	5th day

Fever with Recovery.

Onset of symptoms after confinement.	Result.	
Fever commenced on 3rd day	Recovery on 7th day	*History:* (5th day) lochia normal, temperature 104° F.; exploration of uterus, removal of placental fragments, douching of uterus.
Fever commenced on 4th day	Recovery on 7th day	*History:* (6th day) lochia offensive, temperature 104° F.; no special treatment.
Fever commenced on 3rd day	Recovery on 7th day	*History:* (6th day) temperature 103° F.; treatment: intra-uterine douches.
Fever commenced on 3rd day	Recovery on 6th day	*History:* Child born dead and macerated; (5th day) lochia natural, temperature 104° F.; exploration of uterus, removal of placental fragments, intra-uterine douches.
Fever commenced on 3rd day	Recovery on 24th day	*History;* (6th day) lochia slightly offensive, temperature 104·5° F.; exploration of uterus, intra-uterine douches and anti-streptococcic serum.
Fever commenced on 4th day	Recovery on 24th day	*History:* Forceps case; (5th day) lochia normal, temperature 105° F.; exploration of uterus, intra-uterine douches.
Fever commenced during 1st week	Recovery in 14th week	*History:* (8th week) purulent discharge from uterus, temperature 104° F.; an anti-streptococcic serum had been used; abdominal section, chronic pelvic cellulitis.
Fever commenced on 3rd day	Recovery in 5th week	*History:* (10th day) lochia normal, temperature 105° F.; profuse sudaminal rash; no special treatment.
Fever commenced on 5th day	Recovery on 21st day	*History:* Forceps case; (7th day) lochia offensive, temperature 104° F.; exploration of uterus, removal of placental fragments, intra-uterine douches, anti-streptococcic serum.
Fever commenced 5th or 6th day	Recovery on 28th day	*History:* (21st day) signs of pelvic cellulitis, lochia purulent, temperature 105° F.; intra-uterine douches.
Fever commenced on 3rd day	Recovery on 4th day	*History:* (3rd day) lochia slightly offensive, temperature 102·5° F.; intra-uterine douches.
Fever commenced on 3rd day	Recovery on 24th day	*History:* Forceps case; (6th day) lochia normal, temperature 106° F.; exploration of uterus, repeated intra-uterine douches, anti-streptococcic serum.
Fever commenced on 3rd day	Recovery	*History:* (4th day) lochia normal, temperature 102·5° F.; no special treatment.
Fever commenced on 4th day	Recovery	*History* (5th day): lochia normal, temperature 103·5° F.; no special treatment.

Cases of Severe Fever with

	Labour at full term, or miscarriage.	Age.	Bacteriological examination of uterus.	Bacteriological examination of vaginal discharge.	Date after confinement on which bacteriological examination was made.
29	Full term, 4th pregnancy	29	Streptococcus, *Staphylococcus pyogenes albus*, and a bacillus (? species)	Not examined	44th day
30	Full term, 1st pregnancy	—	*Staphylococcus pyogenes aureus* and *B. coli communis*	*Staphylococcus pyogenes aureus* and *B. coli communis*	4th day
31	Full term, 1st pregnancy	—	*Micrococcus pneumoniæ* and *B. coli communis*	*Micrococcus pneumoniæ* and *B. coli communis*	4th day
32	Miscarriage at 3rd month, 3rd pregnancy	—	*Micrococcus pneumoniæ* (pure culture)	No examination	3rd day
33	Full term, 4th pregnancy	—	Diplococcus (*? Micrococcus pneumoniæ*) and *B. coli communis*	Diplococcus (*? Micrococcus pneumoniæ*) and *B. coli communis*	10th day
34	Full term, 2nd pregnancy	—	Diphtheroid bacillus (pure culture)	Diphtheroid bacillus, *Staphylococcus pyogenes albus*, and a bacillus (+ Gram). ? species	5th day
35	Miscarriage at 2nd month	—	Diphtheroid bacillus, and ? another bacillus (species not identified)	Not examined	14th day
36	Full term, 1st pregnancy	—	Sterile	Streptococcus and *Staphylococcus pyogenes albus*	9th day
37	Full term, 1st pregnancy	—	Sterile	Streptococcus, *B. coli communis*, and *B. pyocyaneus*	5th day
38	Full term, 1st pregnancy	—	Sterile	*B. coli communis* and another bacillus (species not identified)	5th day
39	Full term, 2nd pregnancy	—	Sterile	*B. pyocyaneus* and *B. coli communis*	18th day
40	Full term, 6th pregnancy	—	Sterile	Sterile	5th day

Recovery—continued.

Onset of symptoms after confinement.	Result.	
Fever commenced 4th day; apparent recovery; rise of temperature again on 18th day	Recovery in 7th week	*History:* temperature rose to 102·4° F. on 4th day; intra-uterine douches and apparent recovery; on 18th day left leg began to swell and temperature rose again; on 21st day right leg began to swell; on 33rd day admitted into hospital with double phlegmasia alba, temperature 102° F.; ten days later became unconscious, passed urine and fæces involuntarily; temperature 102° F.; pulse uncountable; special puerperal anti-streptococcic serum given, temperature fell, and speedy recovery followed.
Fever commenced on 3rd day	Recovery on 6th day	*History* (4th day): lochia slightly offensive; temperature 103° F.; exploration of uterus and intra-uterine douches.
Fever commenced on 4th day	Recovery on 7th day	*History* (4th day): exploration of uterus, retained portions of membranes removed, intra-uterine douches; abrupt fall of temperature on 7th day.
Fever commenced on 2nd day	Recovery on 6th day	*History* (2nd day): temperature 102·5° F.; (4th day) lochia very offensive, exploration of uterus and removal of offensive placental fragments.
Fever commenced on 3rd day	Recovery on 15th day	*History* (10th day): lochia offensive; temperature 104° F.
Fever commenced on 4th day	Recovery on 7th day	*History* (5th day): lochia offensive, temperature 103·5 F.; intra-uterine douches. (See "A 'Diphtheroid' Bacillus isolated from the Uterus in two Cases of Puerperal Fever," Foulerton and Bonney, 'Path. Soc. Trans.' of 1903.)
Fever commenced on 3rd day	Recovery	*History* (14th day): lochia normal; temperature 104° F.; exploration of uterus and intra-uterine douches.
Fever commenced on 2nd day	Recovery by 14th day	*History:* prolonged labour; (9th day) lochia normal; temperature 103° F.
Fever commenced on 3rd day	Recovery on 6th day	*History* (5th day): lochia normal; temperature 105° F.; no special treatment.
Fever commenced on 4th day	Recovery on 6th day	*History* (5th day): lochia offensive; temperature 105° F.; exploration of uterus and intra-uterine douches.
Fever commenced on 5th day	Recovery on 28th day	*History* (18th day): lochia greenish and purulent; temperature 104° F.; rigors and delirium; exploration of uterus and intra-uterine douches
Fever commenced on 2nd day	Recovery about 21st day	*History* (5th day): lochia purulent and not offensive; temperature 104°F.; intra-uterine douches

C—Cases of Slight

	Labour at full term, or miscarriage.	Age.	Bacteriological examination of uterus.	Bacteriological examination of vaginal discharge.	Date after confinement on which bacteriological examination was made.
41	Full term, 4th pregnancy	—	*Staphylococcus pyogenes albus* and *B. coli communis*	*Staphylococcus pyogenes albus* and *B. coli communis*	5th day
42	Full term, 1st pregnancy	—	*Staphylococcus pyogenes albus* and *B. coli communis*	*Staphylococcus pyogenes albus, B. coli communis,* and another bacillus (species not identified)	6th day
43	Full term, 1st pregnancy	—	*Staphylococcus pyogenes albus* (pure culture)	*Staphylococcus pyogenes albus* (pure culture)	7th day
44	Full term, 1st pregnancy	—	Diplococcus (large size, — Gram) species not identified	Not examined	3rd day
45	Full term, 2nd pregnancy	—	Sterile	*Staphylococcus pyogenes albus* and *B. coli communis*	8th day
46	Full term, 1st pregnancy	—	Sterile	*Staphylococcus pyogenes albus* and *B. coli communis*	7th day
47	Full term, 1st pregnancy	—	Sterile	*Staphylococcus pyogenes albus* and *B. coli communis*	14th day
48	Full term, 1st pregnancy	—	Sterile	*Staphylococcus pyogenes albus* and *B. coli communis* (also a bacillus, + Gram, not isolated)	3rd day
49	Full term, 1st pregnancy	—	Sterile	*Staphylococcus pyogenes albus*	10th day
50	Full term, 8th pregnancy	—	Sterile	*B. coli communis*	4th day
51	Full term, 1st pregnancy	—	Sterile	*B. coli communis*	6th day
52	Full term, 1st pregnancy	—	Sterile	*B. coli communis*	7th day and 8th day
53	Full term, 9th pregnancy	—	Sterile	*B. coli communis* and a diplococcus (of large size, — Gram)	4th day
54	Full term, 1st pregnancy	—	Sterile	Sterile	8th day

Fever with Recovery.

Onset of symptoms after confinement.	Result.	
Fever commenced on 3rd day	Recovery on 6th day	*History* (5th day): lochia offensive; temperature 102° F.
Fever commenced on 3rd day	Recovery during 2nd week	*History:* (6th day) temperature 100° F.
Fever commenced on 5th day	Convalescent on 9th day	*History:* (7th day) lochia rather offensive, temperature 100° F.
Fever commenced on 3rd day	Recovery on 6th day	*History:* Retained placenta; (3rd day) lochia normal, temperature 101° F.; intra-uterine douches.
Fever commenced on 2nd day	Recovery on 10th day	*History:* (8th day) lochia offensive, temperature 101° F.
Fever commenced on 4th day	Recovery on 10th day	*History:* (7th day) lochia normal, temperature 100° F.
Fever commenced on 7th day	Recovery on 18th day	*History:* Forceps case; (14th day) suppurating laceration of perineum, lochia offensive, temperature 102° F.
Fever commenced on 3rd day	Recovery on 7th day	*History:* (3rd day) lochia offensive, temperature 101° F.; intra-uterine douches.
Fever commenced on 6th day	Recovery on 12th day	*History:* (10th day) lochia normal, temperature 100° F.; no special treatment.
Fever commenced on 3rd day	Recovery on 8th day	*History:* Post-partum hæmorrhage; (4th day) lochia offensive, temperature 102° F.
Fever commenced on 5th day	Recovery during 2nd week	*History:* (6th day) lochia normal, temperature 100° F.
Fever commenced on 2nd day	Recovery on 8th day	*History:* (7th day) lochia offensive, temperature 102° F., uterus explored, and fragments of retained placenta removed. (Contents of uterus examined on 2 days.)
Fever commenced on 4th day	Recovery on 6th day	*History:* Forceps case; (4th day) lochia offensive, temperature 100° F.; no special treatment.
Fever commenced during 1st week	Recovery at end of 2nd week	*History:* Chorea came on after delivery; (8th day) lochia normal, temperature 99·5° F.

The general results of the bacteriological examination in the 54 cases may be tabulated as follows :

	Sterile.	Bacteria found in	Total.
Series A—Miscarriage . . .	—	2	
Labour at full term .	—	12	14
Series B—Miscarriage . . .	—	4	
Labour at full term .	5	17	26
Series C—Labour at full term .	10	4	14
	15	39	54

From Table II it will be seen that out of 48 cases of fever after labour at full term 12 terminated fatally, giving a total case mortality of 25 per cent. Of 34 cases (Series A and B) in which after labour at full term the temperature rose to above 102°F. 12 died, giving a case mortality for this group of 35·3 per cent.

In 48 cases of fever after labour at full term the contents of the uterus were sterile in 15 and contained bacteria in 33 ; the case mortality when bacteria were present in the uterus was 36·3 per cent. ; in the other group of cases no deaths occurred.

Of the 48 cases of fever after labour at full term the patient was a primipara in 21, a multipara in 23, and in 4 cases no information as to former pregnancies was obtained.

The distribution of primiparæ and multiparæ in the three series of cases, excluding cases of miscarriage, was :

	Primi-paræ.	Multi paræ.	Not known.	Total.
Series A—Severe cases, death .	2	8	2	12
Series B—Severe cases, recovery	9	11	2	22
Series C—Slight cases, recovery	10	4	—	14
	21	23	4	48

From this it will be seen that the relatively undue pre-

ponderance of primiparæ in our cases is mainly due to the relatively considerable proportion of them in Series C, a fact which probably is caused in part by the inclusion of a few cases from the wards of a lying-in hospital in which a large majority of the patients are primiparæ; and all of the cases quoted from this institution come under the description of "slight" cases.

It will also be noticed that out of 44 cases in which the parity was known the primiparæ account for only 2 deaths as compared with the 8 deaths amongst multiparæ.

The Bacteriological Findings in the 54 Cases.

It will be seen from the analysis of the bacteriological findings which is given in Table III that our results confirm the very generally accepted opinion as to the predominating importance of streptococci in puerperal infections.

Out of 39 cases of fever following on either miscarriage or labour at full term in which bacteria were found in the cavity of the uterus streptococci were present in 25, 64·1 per cent.

Taking the complete series of 54 cases, streptococci were found in the uterus in 46·2 per cent., and were found twice in the vaginal lochia when the contents of the uterus were sterile of bacteria. If we exclude the 14 cases of Series C in which the symptoms were but slight and in which the temperature did not rise above 102° F., the importance of streptococci becomes still more marked. In Series A and B there are altogether 40 cases—6 in which the fever resulted from miscarriage, and 34 in which it came on after labour at full term. Amongst these 40 cases there were 14 deaths, 2 of which occurred after miscarriage, and streptococci were found in the uterus in both of the cases in which death occurred after miscarriage and in 8 out of the remaining 12 cases. Amongst these 40 cases bacteria were found in the uterus in 35, and the uterus was sterile of bacteria in 5; in the former cases streptococci were found in the uterus 25 times, and in the vaginal lochia

TABLE III.—*Analysis of the Results of the Bacteriological Examination Death. B—Severe Cases with*

		Uterus sterile of bacteria.	Bacteria isolated from contents of the uterus.	Species of						
				Streptococci: in pure culture.	Streptococci and *B. coli communis*.	Streptococci and *Staphylococcus pyogenes albus*.	Streptococci, *Staphylococcus pyogenes albus*, and *B. coli communis*.	Streptococci, *B. coli communis*, and *B. pyocyaneus*.	Streptococci, *B. coli communis*, and another bacillus (Case 10).	Streptococci, *Staphylococcus pyogenes albus*, and a bacillus (Case 29).
A. 14 cases.	Miscarriage . .	—	2	—	1	—	1	—	—	—
	Labour at full term	—	12	2	4	—	1	—	1	—
B. 26 cases.	Miscarriage . .	—	4	—	—	1	—	1	—	—
	Labour at full term	5	17	8	1	3	—	—	—	1
C. 14 cases.	Miscarriage . .	—	—	—	—	—	—	—	—	—
	Labour at full term	10	4	—	—	—	—	—	—	—
		15	39	10	6	4	2	1	1	1

Streptococci, in pure culture . . 10 cases.
„ with other bacteria . 15 „
25 „

of the Contents of the Uterus in 54 Cases. A—Cases terminating in Recovery. C—Cases of Slight Fever.

bacteria present in the uterus in 39 cases.

Micrococcus pneumoniæ: in pure culture.	Diplococcus (+ gram), ? Micrococcus pneumoniæ: in pure culture (Case 13).	Micrococcus pneumoniæ, *B. coli communis*, and *Staphylococcus pyogenes albus*.	Micrococcus pneumoniæ and *B. coli communis*.	Diplococcus (+ gram)? Micrococcus pneumoniæ and *B. coli communis* (Case 33).	*Staphylococcus pyogenes aureus* and *B. coli communis*.	*Staphylococcus pyogenes albus*: in pure culture.	*Staphylococcus pyogenes albus* and *B. coli communis*.	Diplococci (– gram) not M. gonorrhœæ: in pure culture (Cases 14 and 44).	"Diphtheroid" bacillus: in pure culture.	"Diphtheroid" bacillus and ? another bacillus (+ gram).	Total.
—	—	—	—	—	—	—	—	—	—	—	2
—	1	2	—	—	—	—	—	1	—	—	12
1	—	—	—	—	—	—	—	—	—	1	4
—	—	—	1	1	1	—	—	—	1	—	17
—	—	—	—	—	—	—	—	—	—	—	0
—	—	—	—	—	—	1	2	1	—	—	4
1	1	2	1	1	1	1	2	2	1	1	39

Micrococcus pneumoniæ, in pure culture . 1 case.
" " with other bacteria . 3 cases.
? " " . . . . 2 "
6

1	3	2	2

in 2 of the cases, in which the uterus was found to be sterile of bacteria.

Taking the "severe" cases of puerperal fever (Series A and B), streptococci were present in the uterus in 62·5 per cent., as against 46·2 per cent. taking all cases in the three series.

If our cases are sufficiently numerous to allow reliable conclusions to be drawn from our results, it will be seen at once how important are the streptococci forms of puerperal fever; it will also be generally accepted, we think, that in the absence of exact bacteriological diagnosis of the nature of the infection in a case of puerperal fever the safest course to follow is to treat it as if it were of streptococcic origin.

Whilst practically all those who have examined the uterine contents in cases of puerperal fever agree as to the frequent occurrence of streptococci in such cases, there is a good deal of difference between the results of individuals. Thus Czerniewski found streptococci present in the uterus in 49 out of 91 examined—53·8 per cent.; Krönig found them in 75 out of 179 cases examined—41·9 per cent.; Whitridge Williams found them in 44 out of 150 cases examined—29·4 per cent.; and Vogel found them in 7 out of 24 cases examined—29·1 per cent.

A point of great practical importance in connection with the question of serum treatment is that of the specific identity of the various forms of streptococci which are found in cases of puerperal fever; we do not propose to go into this point in detail in the present communication, but we may say that between various strains of streptococci which we have found in the uterus in our 25 cases there have been such marked differences in some instances as to justify us in assuming that we have been dealing with several distinct species, and not merely with varieties of one and the same streptococcus.

The next micro-organism in order of importance in our series was *Micrococcus pneumoniæ*, which we identify positively in 4 cases and believe to have been present in 2

others (Table II, Cases 11, 12, 31, 32, (?) 13, (?) 33). In Cases 11, 12, 31, and 32 the organism was fully identified as *M. pneumoniæ* by its appearance in the uterine discharge, and in Case 12 by its appearance in stained sections of the uterine wall as well, by its cultural characteristics, and by the results of animal inoculation ; in Cases 13 and 33 encapsuled diplococci which stained by Gram's method were found in the uterine lochia, and an organism corresponding exactly in cultural characteristics with *M. pneumoniæ* was isolated, but the animal experiments failed. Large doses of a pure culture in broth of the diplococcus isolated from Case 13 were without any pathogenic action on the mouse, and the animal experiments with the diplococcus isolated from Case 33 failed from accidental causes, and could not be repeated. We have, however, little doubt but that the organism which we isolated from each of these two cases was in fact *M. pneumoniæ*.

The following points of interest in connection with this set of pneumococcic cases may be mentioned. Case 13, one of the two cases in which we did not establish absolutely the identity of the organism isolated, was attended in her confinement by the same practitioner who a few days previously had attended Case 31, in which the identity of the organism was absolutely proved. Case 32 was one of miscarriage at the third month, and on the third day afterwards a pure culture of *M. pneumoniæ* was isolated from the contents of the uterus. There was no history of pneumonia or other previous illness, and we concluded that the case was probably one of primary affection of the uterus, rather than merely a miscarriage occurring in the course of a pneumonia with general infection.

Our series certainly contains an unusual number of pneumococcic infections when compared with results which others have published, and further reference to such cases will be found in a short paper dealing with our first case (Table II, 11), which appeared in the 'British Journal of Obstetrics and Gynæcology,' May, 1903.

The next recognised pathogenic species which we have

to refer to is *Staphylococcus pyogenes aureus*, which we found once in association with *B. coli communis* in Case 30. Others have remarked on the infrequency of occurrence of this organism in puerperal infections, an observation which our own results confirm. The case in which this coccus occurred presented a sharp rise of temperature to 103° F., but convalescence followed quickly on exploration of the uterus and subsequent douching.

We have now referred to the examination of 32 of the 39 cases in which we found bacteria in the contents of the uterus, and in each case the micro-organism found was of a definitely recognised pathogenic species, and of such a nature that we might reasonably assume that the symptoms in the respective cases were due to the infection which we had proved.

The remaining 7 cases in which bacteria were found in the uterus come, however, under a somewhat different category, inasmuch as it might be questioned whether the organisms found in the uterus were the actual cause of the illness.

These 7 cases comprise Cases 34 and 35, in which a "diphtheroid" bacillus was found in the uterus; Case 43, in which we obtained a pure culture of *Staphylococcus pyogenes albus* from the contents of the uterus; Cases 41 and 42, in which we found *Staphylococcus pyogenes albus* in the uterus in association with *B. coli communis*; and Cases 14 and 44, in which we obtained from the contents of the uterus a pure culture of a diplococcus which did not stain by Gram's method, and which grew freely on ordinary nutrient gelatin at a temperature of 20° C., and without liquefying the medium.

Some account of the characteristics of the "diphtheroid" bacillus which we isolated from Cases 34 and 35 has already been published in the 'Transactions of the Pathological Society,' vol. ii, and we need only say now that morphologically the bacillus was indistinguishable from *B. diphtheriæ*, but that it otherwise presented the following points of distinction: (1) it did not produce any acid in

glucose pepton-broth after six days' incubation at a temperature of 37° C.; and, (2) it was non-pathogenic for the guinea-pig. We have found a similar "diphtheroid" bacillus in the cervical secretion of non-pregnant women, and it appears to us to be probable that in the two cases of puerperal fever in which we found it the organism was present in a pathogenic capacity. The bacillus which we have described is possibly the same species as that found by Halle in the vagina, and believed by him to be the pseudo-diphtheria bacillus of Weekes.

It is on record that *Bacillus diphtheriæ* has been found several times in the uterus or in the vaginal lochia, but so far as we can ascertain the description of the bacillus found in these cases would apply to our "diphtheroid" bacillus equally as well as to the true *B. diphtheriæ*.

Cases 41, 42, and 43, can be dismissed in very few words; in the first two we found *Staphylococcus pyogenes albus* and *B. coli communis* in the uterus, in the last we found *S. pyogenes albus* in pure culture. In all these cases the symptoms were of what may be termed a "slight" character, but we are not prepared to suggest whether or not they were due solely to the bacteria which we found. It may be pointed out that, at any rate, the bacteriological examination of the vaginal lochia in these three cases showed the presence in each case of the same bacteria as we found in the uterus.

The last two cases of those in which we found bacteria in the uterus are Nos. 14 and 44 in Table II. In both these cases we found in the uterus in pure culture a diplococcus which presented certain distinctive characters. The organism was a largish coccus which had a marked tendency to a diplococcal arrangement; it grew freely on all the ordinary media including nutrient gelatin, which was not liquefied; the organism did not stain by Gram's method. We found a precisely similar diplococcus in one of the cases in which we examined the cervical secretion of non-pregnant women, and once in the vaginal lochia when the puerperium was normal and the uterus sterile, and we are

unable to suggest anything as to its pathogenic importance in the two cases of puerperal fever in which we found it in the uterus. The cases were clinically very different; Case 14 was one of severe puerperal fever which died within eight days of the onset of unfavourable symptoms, but we did not make any examination of the vaginal lochia, nor was there any examination after death; whilst Case 44 was a very mild case of puerperal fever in which symptoms disappeared within three days, and without any treatment except intra-uterine douching.

We have been unable to identify this diplococcus with any of those which have been previously described as occurring in the genital passage of women. It is distinguished from the diplococcus which Bumm found in several cases of cystitis after labour by the fact that the growth on nutrient agar is of whitish colour and not yellowish as in the case of Bumm's diplococcus; and Bockhart's diplococcus which was found in cases of vaginitis, and which resembled this one in some respects, apparently was not decolorised when stained by Gram's method.

The Frequency of Occurrence of certain Bacteria in Puerperal Infections.

Whilst our results correspond with those of the majority of workers at the pathology of puerperal infections with regard to what is perhaps the point of most practical importance, that is to say the predominating importance of streptococci, there are certain other points as to which difference is noticeable. Our results have differed from those of some other writers with regard to the following points: (1) The relatively large number of cases in which we found *M. pneumoniæ*, certainly in four cases, and probably in two cases more; (2) the absence of *M. gonorrhœæ* in our series of puerperal infections; and (3) the absence of anaerobic bacteria, except for a single case in which a bacillus of this class was present apparently as a secondarily infecting organism.

In illustration of these differences we may quote results obtained by Krönig, by Whitridge Williams, and by Vogel in their examination of the cavity of the uterus in cases of puerperal fever.

Krönig's results from the examination of 179 cases of puerperal endometritis were as follows: Streptococci were found in 75 cases; staphylococci were found in 4 cases; *M. gonorrhœæ* was found in 50 cases. The remaining 50 cases were classified as "sapræmic"; in 43 of them no growth of bacteria could be obtained on ordinary media under aerobic conditions, but strictly anaerobic bacteria were found in 32, and therefore, presumably, in pure culture. It will be remembered that Krönig has also found *M. gonorrhœæ* and anaerobic bacteria in a certain proportion of the cases in which he has examined the lochia of normal puerperia.

Whitridge Williams gives the following results as obtained in the examination of the uterine lochia in 151 cases of puerperal fever: Streptococci were found in pure culture in 31 cases; streptococci were found together with other bacteria (other than *M. gonorrhœæ*) in 13 cases; staphylococci were found in 4 cases; *M. gonorrhœæ* was found in 8 cases; *B. coli communis* was found in 11 cases; *B. diphtheriæ* was found in 1 case; *B. typhosus* was found in 1 case; unidentified aerobic bacteria were found in 4 cases; unidentified anaerobic bacteria were found in 8 cases; bacteria were seen in coverslip preparations, but no growth obtained, in 45 cases; absolutely sterile in 25 cases.

With reference to two of the cases in Whitridge Williams' list, those in which *B. diphtheriæ* and *B. typhosus* are said to have occurred, it should be pointed out that in the first case full bacteriological proof of the identity of the organism present with *B. diphtheriæ* was apparently not obtained, and with regard to the second case it is not clear whether the fever was due to a primary puerperal infection by *B. typhosus*, or whether the case was one of ordinary typhoid fever in the course of which labour supervened.

Vogel obtained the following results in a series of 24 febrile cases, but did not use any special anaerobic methods of culture: Streptococci were found in pure culture in 2 cases; streptococci were found with *M. gonorrhœæ* in 2 cases; streptococci with bacteria other than *M. gonorrhœæ* were found in 3 cases; *M. gonorrhœæ* were found in pure culture in 2 cases; *Staphylococcus pyogenes aureus* was found in 1 case; other aerobic bacteria were found in 6 cases; sterile, 8 cases. Vogel remarks that the proportion of cases in which he found *M. gonorrhœæ* may, perhaps, be exceptional.

Whilst different results as to the precise causation of cases of puerperal infection may be expected in different series of cases, varying with the class of patient and the circumstances under which labour has occurred, and under which treatment has been carried out, we confess that we are unable to offer any satisfactory explanation of the wide discrepancy between the results of the bacteriological examination in our series of 54 cases, and in the series of 179 which Krönig's statistics deal with. Even allowing for accidental failure of culture experiments, it is difficult to understand how it was that in 54 cases we never found *M. gonorrhœæ* in the contents of the uterus, and found an anaerobic organism only once, and as a secondary infection, when in his larger series Krönig found *M. gonorrhœæ* in nearly 28 per cent. of the cases, and anaerobic bacteria in pure culture in nearly 18 per cent. Whitridge Williams' results as regards anaerobic bacteria are, probably, not quite accurate, as no cultures were obtained in a considerable number of cases in which bacteria were seen in stained specimens; but bacteria of this class were positively identified in about 5 per cent. of the series, whilst *M. gonorrhœæ* were found in exactly the same frequency. In Vogel's much smaller series *M. Gonorrhœæ* were found in about 16·6 per cent of the cases, whilst no deductions as to the relative frequency of anaerobic bacteria can be made in the absence of any attempt to isolate them.

Taking all the facts into consideration, and allowing

for the possibility that in one or two cases our methods may have failed to detect *M. gonorrhœæ* and bacteria of the strictly anaerobic class respectively, we think that it is impossible to accept Krönig's figures as representing the average frequency of occurrence of these bacteria in puerperal infections; Krönig's results also are remarkable for more than the mere frequency of finding of anaerobic bacteria; they are remarkable in that such bacteria were found in pure culture in as many as 32 out of 179 cases of puerperal endometritis examined. For, from what we know generally of infection by strictly anaerobic bacteria, there is reason to believe that in a very large majority of such cases the infection by the anaerobic organism is a secondary one; the conditions favourable to the growth of such bacteria are not found in a healthy wound such as the previously uncontaminated placental site presents. We realise that the peculiar conditions resulting from the retention in the uterus of what is practically dead tissue, retained placental fragments, or pieces of membrane would often permit a primary invasion by strictly anaerobic bacteria: but even so, we consider that Krönig's results with regard to the finding of anaerobic bacteria in cases of puerperal infection cannot be accepted as representing the average frequency of occurrence of this class of bacteria without further confirmation.

With regard to the frequency of occurrence of *M. gonorrhœæ* as a cause of puerperal fever, there is a considerable difference between Whitridge Williams' 5 per cent. and Krönig's 28 per cent., the former not contrasting strongly with our own negative results in a smaller series. And here, again, we think that Kronig's results must be accepted with caution until confirmed by the work of others. We believe that undue importance has been attached to *M. gonorrhœæ* as a cause of puerperal fever by many writers; the bacteriological evidence of the frequency of gonorrhœal puerperal fever is open to question, and the clinical evidence of its occurrence is often extremely doubtful.

We may next refer specially to those cases of puerperal fever in which the cavity of the uterus was found to be sterile of bacteria.

Excluding cases of fever after miscarriage, there were 48 cases of fever after labour at full term, and in 33 of these we found bacteria in the cavity of the uterus. In 27 of these 33 cases the bacteria isolated were of definite pathogenic species, and their presence in the uterus was sufficient to account for the symptoms of the respective cases; in the other 6 cases we found various bacteria of uncertain pathogenic action, but such that their presence afforded a reasonable explanation of the fever, and no other more satisfactory explanation could be found.

With regard to the remaining 15 cases in which no bacteria were found in the cavity of the uterus the following facts have to be noted:

Severe cases (*Series B*).—Case 36: First pregnancy; laceration of perinæum; streptococci present in the vaginal lochia. Case 37: First pregnancy; laceration of cervix and perinæum; streptococci present in the vaginal lochia. Case 38: First pregnancy; laceration of cervix and perinæum. Case 39: Second pregnancy; laceration of cervix. Case 40: Sixth pregnancy; no obvious laceration.

Slight cases (*Series C*).—Case 45: Second pregnancy; no obvious laceration. Case 46: First pregnancy; laceration of cervix and perinæum. Case 47: First pregnancy; very extensive laceration of perinæum. Case 48: First pregnancy; laceration of cervix and perinæum. Case 49: First pregnancy; laceration of cervix and perinæum. Case 50: Eighth pregnancy; no obvious laceration. Case 51: First pregnancy; laceration of perinæum. Case 52: First pregnancy; laceration of perinæum. Case 53: Ninth pregnancy; laceration of perinæum. Case 54: First pregnancy; laceration of perinæum.

Amongst these 15 cases in which the contents of the uterus were sterile there were 10 in which the patients were primiparæ, with, in every case, considerable laceration of the cervix or perinæum, and in two of the cases

streptococci were found in the vaginal lochia; in the remaining 5 cases the patients were multiparæ, and in two of these there was laceration of the cervix or perinæum.

Out of our 48 cases of fever after labour at full term, therefore, there were only 3 cases in which the occurrence of fever could not be explained with probability either by the presence of bacteria in the uterus, or by the happening of laceration of the lower passage.

These facts suggest that the probability of error arising from failure to detect *M. gonorrhœæ* or anaerobic bacteria in the course of our experiments may be regarded as comparatively small.

The Influence of Secondary Infections on the Course of Puerperal Fevers.

The relative importance of secondarily infecting bacteria is a question which must necessarily be considered in an investigation which deals with a class of disease in which there is every opportunity for secondary infection to occur.

The results of our examinations with regard to this aspect of the pathology of puerperal fevers, and fevers occurring after miscarriage, may be stated as follows:

Series A.—Bacteria were found in the uterus in 14 severe cases which ended in death: A single species (streptococci twice) was found in 4 cases; streptococci and *B. coli communis* were found in 5 cases; streptococci, *B. coli communis,* and *S. pyogenes albus* were found in 3 cases; streptococci, *B. coli communis,* and an anaerobic bacillus were found in 1 case; *M. pneumoniæ, B. coli communis,* and *S. pyogenes albus* were found in 1 case.

Series B.—Bacteria were found in the uterus in 21 severe cases which ended in recovery: A single species (streptococci 7 times) was found in 9 cases; streptococci and *B. coli communis* were found in 1 case; streptococci, *B. coli communis,* and *B. pyocyaneus* were found in 1 case; streptococci and *S. pyogenes albus* were found in 4 cases; streptococci, *S. pyogenes albus,* and an aerobic bacillus

were found in 1 case; *S. pyogenes aureus* and *B. coli communis* were found in 1 case; *M. pneumoniæ* and *B. coli communis* were found in 1 case; (?) *M. pneumoniæ* and *B. coli communis* were found in 1 case; *M. pneumoniæ, B. coli communis* and *S. pyogenes albus* were found in 1 case; a "diphtheroid" bacillus and (?) another aerobic bacillus were found in 1 case.

Series C.—Bacteria were found in the uterus in four cases of slight fever which ended in recovery. A single species (*S. pyogenes albus* once) was found in 2 cases; *S. pyogenes albus* and *B. coli communis* were found in 2 cases.

Thus, out of 39 cases in which bacteria were found in the cavity of the uterus, in 26 more than a single species was present, and in a considerable majority of these cases of mixed infection either *B. coli communis* or *S. pyogenes albus* was present in association with the more virulent streptococci or *M. pneumoniæ,* which were, presumably, the primary infecting organisms.

Several writers on puerperal infection have held that the virulence of a primary streptococcic infection is greatly increased by a consecutive invasion of the uterus by *B. coli communis,* and a reference to our results will suggest that there is a frequent association of these two species in severe cases of puerperal fever. But whether, as a rule, a subsequent invasion by *B. coli communis* increases materially the severity of a streptococcic infection, under the given conditions, or whether it is the primary severity of the streptococcic infection which predisposes to a comparatively harmless secondary invasion of the cavity of the uterus by *B. coli communis,* is not quite clear at present. In a considerable proportion of the cases in which we found a mixed infection by streptococci and either *B. coli communis* or *S. pyogenes albus,* the streptococci were present, apparently in enormously preponderating numbers.

Taking a broad view, however, of the question in connection with our particular series of cases, it would appear that the finding of *B. coli communis* in the uterine lochia in association with streptococci has a certain serious sig-

nificance in relation to prognosis, whatever may be the precise influence which the bacillus itself exerts on the course of the case.

Sources of Infection.

The source of infection in a case of puerperal fever may be found in the person of the patient herself, or infection may be conveyed by those who attend her in her confinement.

In the former case puerperal fever may arise from a spontaneous invasion of the uterus by bacteria present in the cervical canal or in the upper part of the vagina before the commencement of labour, or it may be caused by the conveyance of bacteria from the lower part of the passage to the cavity of the uterus by the manipulations of those who are attending on the patient. The conveyance of infection from outside sources by those who are responsible for the care of the patient during her confinement is a matter which has no special claim on our attention here; we may, however, mention that in our comparatively small series there were three cases of streptococcic infection which occurred within a short time of each other in the work of one practitioner, that a couple of cases of streptococcic and a couple of cases of pneumococcic infection occurred under similar conditions amongst the patients of two other practitioners.

There has, however, been much difference of opinion as to the relative importance of auto-infection—that is to say, of infection from sources within the patient herself, in the causation of puerperal fever, and in this relation much work of investigation into the bacteriological condition of the cervical canal and upper part of the vagina in pregnant women has been carried out. And the general trend of teaching at the present time is that such source of infection may in a general sense be disregarded, and that the obstetrician has only to guard against infection from without.

TABLE IV.—RESULTS OF THE BACTERIOLOGICAL EXAMINATION OF CERVICAL DISCHARGE IN WOMEN BELIEVED NOT TO BE PREGNANT.

	Age.	Single or married.	Number of children, if any.	Results of attempted culture from cervical secretion.	Results of microscopic examination of cervical secretion.	Character of cervical secretion.	Clinical details.
1	42	M.	4	*Staphylococcus pyogenes aureus*	Staphylococci (+ Gram)	Mucous	Erosion of os uteri; discharge noticed "for years."
2	37	M.	4	*Staphylococcus pyogenes aureus* and *S. pyogenes albus*	Staphylococci (+ Gram)	Purulent	Discharge noticed for about 2 months, not dating from confinement.
3	—	—	1	*Staphylococcus pyogenes albus*	Staphylococci (+ Gram)	Mucous	Erosion of os uteri; discharge continuous from confinement 9 months previously.
4	30	M.	6	*Staphylococcus pyogenes albus*	No microscopic examination	Mucous	Discharge continuous from confinement 6 years previously.
5	30	M.	4	*Staphylococcus pyogenes albus*	Staphylococci (+ Gram)	Mucous	Discharge continuous from confinement 10 weeks previously.
6	41	M.	5	*Staphylococcus pyogenes albus* and "diphtheroid" bacillus	Staphylococci (+ Gram), bacilli (+ Gram)	Purulent	Erosion of os uteri; discharge does not date from confinement.
7	—	M.	—	*Staphylococcus pyogenes albus* and "diphtheroid" bacillus	Staphylococci (+ Gram), bacilli (+ Gram)	Mucous	Erosion of os uteri.
8	29	M.	1	Diplococcus (?*Micrococcus pneumoniæ*) and "diphtheroid" bacillus	Encapsuled diplococci (+ Gram), bacilli (+ Gram)	Mucous	Discharge continuous from confinement 12 weeks previously.
9	30	M.	1	"Diphtheroid" bacillus	Bacilli (+ Gram)	Mucous	Slight erosion of os uteri; discharge continuous since miscarriage 3 years previously.
10	29	M.	6	"Diphtheroid" bacillus	Bacilli (+ Gram)	Mucous	Discharge continuous from confinement 2 months previously.
11	33	M.	1	"Diphtheroid" bacillus	Bacilli (+ Gram)	Mucous	Discharge noticed for about one week; does not date from confinement.

12	35	M.	—	"Diphtheroid" bacillus	No microscopic examination	Muco-purulent	Erosion of os uteri; discharge noticed for about 3 years.
13	23	S.	—	*Micrococcus gonorrhœæ*	Diplococcus (– Gram)	Mucous	Discharge noticed for about 4 months; vaginitis.
14	—	S.	—	Diplococcus (– Gram), not *M. gonorrhœæ*	Diplococcus (– Gram)	Muco-purulent	Vaginitis, with history of past gonorrhœa.
15	35	M.	2	*B. coli communis*	Bacilli (– Gram)	Muco-purulent	Discharge continuous since last confinement.
16	26	M.	2	A yeast and a streptobacillus (+ Gram)	A yeast (+ Gram), and bacilli (+ Gram)	Mucous	Discharge continuous since confinement 12 weeks previously.
17	25	S.	—	Culture-tubes sterile	Diplococci (intracellular, – Gram)	Muco-purulent	Erosion of os uteri.
18	24	S.	—	Culture-tubes sterile	A few bacilli (+ Gram) of beaded appearance	Mucous	Has vulvitis and vaginitis.
19	24	M.	1	Culture-tubes sterile	A considerable number of fine bacilli (+ Gram)	Mucous	Discharge continuous from confinement 8 weeks previously.
20	28	S.	—	Culture-tubes sterile	No bacteria seen	Mucous	—
21	21	S.	—	Culture-tubes sterile	No bacteria seen	Mucous	—
22	20	M.	—	Culture-tubes sterile	No bacteria seen	Mucous	—
23	30	M.	1	Culture-tubes sterile	No bacteria seen	Mucous	Discharge continuous from confinement 8 weeks previously.
24	32	M.	1	Culture-tubes sterile	No bacteria seen	Mucous	Erosion of os uteri; discharge noticed since last confinement 5 years previously.
25	34	M.	1	Culture-tubes sterile	No bacteria seen	Mucous	Discharge noticed since last confinement 2 years previously.
26	—	M.	2	Culture-tubes sterile	No bacteria seen	Mucous	Discharge noticed since last confinement 4 years previously.
27	34	M.	4	Culture-tubes sterile	No bacteria seen	Muco-purulent	Discharge noticed since last confinement 16 months previously.
28	50	M.	7	Culture-tubes sterile	No bacteria seen	Mucous	Erosion of os uteri.
29	31	M.	2	Culture-tubes sterile	No examination made	Mucous	Erosion of os uteri; discharge noticed before first confinement, and has persisted for about 15 years.
30	41	M.	8	Culture-tubes sterile	No examination made	Mucous	—

Believing, as we do, that the most frequent cause of severe puerperal fever, and the most important factor in the causation of mortality from puerperal fevers, is one or other form of streptococcic infection, and there being also reason for believing that in a very large majority of cases of streptococcic infection the conveyance is from without, it is impossible to question the soundness of this teaching generally, and for practical purposes. But if we consider all cases of puerperal fever, slight and severe, it is also impossible to doubt but that a certain not altogether inconsiderable proportion do arise from auto-infection.

So many investigations into the bacteriological constituents of the vaginal secretion of pregnant women have already been made that we did not think it necessary to re-investigate this subject, and we think that an impartial review of all the work which has been carried out and published with regard to this matter will convince most obstetricians that the vagina and cervical canal of the pregnant woman may contain bacteria which are potential causes of puerperal fever. And, given the presence of such bacteria before labour, in the cervical canal especially, it is obvious that infection of the cavity of the uterus, or of lacerations of the cervix itself, must occur from time to time.

We have, however, made a bacteriological examination of the cervical secretion in 30 non-pregnant women with more or less catarrh of the lining of the canal, in order to ascertain whether the bacteria which are to be found in the secretion in cases of slight disease are such as may be a cause of puerperal fever.

The results of our examination are given in Table IV, and it will be seen that amongst these cases we found several bacteria which have already been referred to as being found in the uterus in cases of puerperal fever. Thus, we have found in both the cervical canal of non-pregnant women and in the puerperal uterus *S. pyogenes aureus*, *S. pyogenes albus*, the "diphtheroid" bacillus which we have described, a diplococcus which did not

stain by Gram's method and was not *M. gonorrhœæ*, and another diplococcus which corresponded in every particular except pathogenicity for lower animals with *M. pneumoniæ*. We also found *M. gonorrhœæ* in the cervical secretion, although we have not been able to demonstrate its presence in the uterus in any of our puerperal cases.

Having regard to these results of the examination of thirty women, taken at random from amongst patients who complained of suffering from "whites," we think that it is obvious that opportunity for auto-infection must be of fairly frequent occurrence, and it is probable that a very definite proportion of the cases of puerperal fever, of a mild type at any rate, arise in this way.

Conclusions.

We may now briefly refer to some points of practical interest which are suggested by the results of our investigation.

In the first place it seems obvious that the old classification of cases of puerperal fever into sapræmic, septicæmic, and pyæmic has but little value; a comparison of clinical observations with bacteriological findings shows that it is practically impossible to distinguish between cases of septicæmia which are, for the time, of a mild type and cases of "sapræmia," using the latter term in what we apprehend to have been the sense in which it was formerly used in this connection. And bacteriologically the distinction between a case of septicæmia and one of "sapræmia," or toxæmia as we would now term it, is often extremely indefinite.

Whilst no really useful and at the same time concise scheme for the classification of a class of diseases presenting the variety of features which is presented in puerperal fevers is practicable, the following scheme at any rate indicates the main pathological processes concerned in the production of the symptoms of these infections:

(I) Infection of lacerations of the perineal tissues, or of the vaginal wall (sometimes with direct extension by continuity of surface to the cavity of the uterus).	(1) Localised infection + toxæmia; (2) Localised infection + toxæmia + generalised infection.
(II) Primary infection of the contents of the uterus, or of the placental site.	(1) Localised infection + toxæmia; (2) Localised infection + toxæmia + generalised in- tion.

We have already said that perhaps the chief point which presents itself amongst the results of our investigation is the predominating importance of streptococcic infection in the causation of puerperal fevers. Thus, referring once again to the results of our bacteriological examinations, it will be seen that out of 14 cases of puerperal fever which ended in death, 10 were cases of streptococcic infection; that in 26 severe cases which ended in recovery there were 16 patients who had a streptococcic infection of the uterus and 2 who showed streptococci in the vaginal lochia only; whilst none of the 14 cases of "slight" fever (temperature not rising above 102° F.) had a streptococcic infection. And the next most important organism was *M. pneumoniæ*, which accounted for 3 out of the 4 other deaths, whilst the cause of the remaining death remained uncertain.

Infection by various strains of streptococci or by *M. pneumoniæ* was present in 33 out of 40 cases of severe puerperal fever (Groups A and B), and these organisms may be held responsible for 13 out of the 14 deaths which occurred (Series A).

And between streptococci generally and *M. pneumoniæ* there are such close affinities with respect to pathogenic action that, apart from the question of specific antitoxic serum treatment, the same general treatment may be regarded as applicable to either.

We think, therefore, that we are justified in laying it down as a general rule that in the absence of a definite bacteriological diagnosis, the safe course for the practitioner to adopt is to deal with every case of puerperal fever in which the temperature rises above 102° F. as if it were a case of streptococcic infection.

With regard to the question of the special antitoxic treatment of streptococcic infection there is very little that need be said now, the more especially so as one of us has recently dealt with the matter at some length ("The Treatment of Streptococcic Puerperal Fever by Antitoxic Serum," 'The Lancet,' December 31st, 1904). We believe, however, that more than one species of streptococcus is met with in puerperal infections, and that for serum treatment to be applied with any reasonable hope of success under present conditions a polyvalent or compound serum from a horse immunised against the various strains of streptococci which are met with in puerperal infections is necessary. And we believe that by the use of such a compound anti-streptococcic serum, recently obtained from the horse and used in sufficiently large doses, a considerable reduction in the mortality caused by streptococcic puerperal fever could be effected.

The next point which we have to consider is the question of active curettage of the uterus in cases of puerperal infection. In the case of either a streptococcic or pneumococcic infection of the uterus, with or without secondary infection by other bacteria, this procedure would seem on the one hand to be incapable of doing any good, and on the other hand may be productive of most serious result by infecting the hitherto intact deeper tissues of the uterine wall. Nor, again, is it probable that in cases in which the uterus is invaded by bacteria which, unlike the streptococci and *M. pneumoniæ*, have little tendency to infect the deeper layers of the uterine tissues, the operation is likely to effect any definite good by removing all infection, however thoroughly the curettage may be carried out. We consider, therefore, that the use of the curette

should be absolutely discarded in the treatment of puerperal uterine infection.

The results of the treatment of some of the cases of streptococcic infection which have been dealt with in this paper have been such as to suggest that the best local treatment to adopt is that which is now commonly carried out in this country at the onset of puerperal fever—digital exploration of the uterus, the removal in this way of any retained fragments, and subsequent douching of the cavity of the uterus with an antiseptic solution.

A clinical fact of some importance is that although invasion of the uterus by streptococci is marked by a sharp rise of temperature and other symptoms of some severity, the fever may be transient, and may subside within 48 hours without any special treatment. This fact is one that may be usefully remembered when tracing the conveyance of infection in puerperal cases.

The last matter which we have to refer to is the question of preventive measures which can be taken against the risk of auto-infection, the use more especially of vaginal douching with antiseptic solutions before the commencement of labour. We have the strongest doubts as to the effect of any such douching upon bacteria located in the cervical canal, such as those which we found in the cervical secretion of non-pregnant women, and regard the procedure as generally a useless one. But at the same time the objection which has been urged against it, that by means of it bacteria may be conveyed from the vulva to the upper part of the vagina, appears to be without good foundation.

Dr. Peter Horrocks congratulated the authors on the scientific spirit in which this work had been conceived and carried out. He considered that one of the most important facts stated by them was that in every instance in which they had examined the contents of the uterus in normal puerperium, twelve in all, they had found them sterile of bacteria. This was additional pathological evidence of what had been proved clinically over and over again, namely, that in normal labours where a patient had not been touched, the puerperium was, as a rule, normal. He thought this pathological fact brought by an author should be another

nail in the coffin of interference in labour, such as routine syringing, vaginal or uterine. He had listened most carefully to the reading of the paper, and so far as he could gather no mention was made of the distinction between puerperal septicæmia proper and cases of puerperal sapræmia. Apparently the authors had taken as their principle of classification the different degrees of pyrexia, dividing the cases into fatal and non-fatal, and the latter into severe cases with high fever and milder cases with less fever. Such a principle was no doubt scientific, but at the same time one must remember that the ordinary puerperal fever that had been in the past the *bête noire* of all accoucheurs, that had decimated the lying-in hospitals of London and other cities, causing them to be closed more than once owing to the high mortality, was quite as different from a puerperal sapræmic case as scarlatina was different from measles. The presence or absence of an offensive discharge was of the greatest moment. In the grave form, or puerperal septicæmia proper, the lochia were not offensive but were scanty or suppressed and sweet, whereas in sapræmia the bacteria were not scanty but were offensive, and when the offending products were cleared out of the uterus the temperature, as a rule, rapidly fell to normal and the patient recovered. Doubtless in some cases the patient suffered from a mixed sepsis, and then the clearing out of offensive stuff from the uterine cavity was not followed by the improvement usually expected. In the severe non-offensive fatal cases it had been his experience that there was always more or less peritonitis. Indeed, most of these cases died with signs of suppurative peritonitis, abdominal distension, cold hands and feet, and pulselessness. It was generally accepted that the microbe in these cases was the streptococcus. He should like to ask the authors if that was their own view, and whether it were possible to detect the streptococcus by examination of the blood. With regard to the use of antistreptococcic serum he had had a large experience and was bound to admit that the results were sometimes excellent and sometimes *nil*, and so far as he knew it was impossible beforehand to say whether the serum would do good or not. Hence it was his practice to administer the serum in 10 or 20 c.c. doses subcutaneously two or three times in twenty-four hours. The serum was obtained from the British Institute of Preventive Medicine. Of course the serum was not required in purely sapræmic cases.

Dr. Amand Routh said that there was no doubt as to the frequency of streptococcal infection in puerperal fever. It was interesting to find that out of the fifty-four cases investigated by the authors fifteen, or 28 per cent., proved sterile. To what was the infection due here? In this connection was it not possible that there were other sources of infection than those due to bacteria? Of course many of these cases were due to the ready

absorption of toxines and possibly of ptomaines which were produced and deposited by saprophytic organisms in the bruised and lacerated tissue. These tissues had lost all so-called "natural resistance" both to germs and their toxins. The circulation in them was stagnant and the processes of phagocytosis and the formation of alexins was thereby absent. Apart, however, from the action of saprophytic organisms was it not possible that other vegetable micro-organisms besides bacteria might have an occasional action upon these lacerated and toneless tissues? The protozoa—the lowest forms of animal life—were not likely to cause trouble, but this was not so certain as regards the hyponiycetes or mould, such as occur in thrush, favus, ringworm, and the like. The blastomycetes, or yeasts, which were causes of various kinds of dermatitis, were more likely to cause mischief. Cope in 1899 described a case of chronic endometritis, due to one of the yeast group, and if this was correct a puerperal endometritis was not impossible. It must be remembered too that there was but little essential difference between the processes of fermentation and putrefaction. Between these moulds and yeasts on the one hand and the bacteria group on the other there were the streptothrices, one of which group caused actinomycosis, so that it would be well if investigations were not confined solely to bacteria. After several years' experience Dr. Routh was disappointed with the treatment of puerperal fever by antistreptococcic serum. Theoretically antistreptococcic serum should be injected as one of the methods of treatment. Polyvalent serum, such as those of Roux, of Burroughs and Wellcome, of St. Mary's Hospital, and of the authors', should each be tried, one after the other, as there are so many strains of streptococci. He had only seen one case in which the serum cured the patient, and that was on the ninth day of the puerperium, when a pelvic abscess was already forming. It must be remembered that almost all the bacilli which caused puerperal fever confer no immunity upon their hosts, but rather predisposed them to other attacks. Attacks of diphtheria, pneumonia, gonorrhœa, erysipelas (also a streptococcic infection) all rather tended to predispose than to render immune, so that in treating puerperal fever with antitoxin serum we could confer no such "acquired immunity" as we could in aborting smallpox by vaccination. The antistreptococcic serum might, if the right strand were found, have an anti-toxic action, but it was very doubtful if it had any anti-bactericidal action. It was indeed very likely that it acted, where it acted at all, by causing a general hyperleucocytosis, and so encouraged phagocytosis and the production and setting free of alexins to counteract the poison. This was how saline infusions acted. He considered that our efforts should rather be to find out some agent which when taken by the mouth or injected could encourage hyperleucocytosis and so increase the "natural resistance" of the body. The first thing to do was, as

soon as a gradual or sudden rise of temperature occurred after a confinement, to explore the uterus, removing all *débris*, etc., and to freely apply liquor iodi all over the endometrium and placental site, and over all vaginal lacerations, always avoiding curetting. In the vast majority of cases this sufficed to cure the patient, if done within twenty-four hours of the infection. As a preliminary to all other treatments perchloride of iron should be given in doses of 20 or 30 drops of the tincture every two or three hours. This agent might cause the temperature to drop as suddenly as if a powerful anti-bactericidal injection had been given, and no bad result followed its use. It was preferable to every other drug, and should be looked upon as the sheet-anchor in treatment after the uterine cavity had been explored as indicated above.

Dr. Sikes said that he was personally much indebted to the authors for their paper, as he had done some work on the same subject himself. The cases, however, which he had investigated had been much milder than those quoted, as at Queen Charlotte's Hospital in the last two and a half years he could only remember one fatal septic case, and here the disease had originated in some old gonorrhœal abscesses in the cellular tissue round the cervix. Until recently the methods of taking intra-uterine cultures had been most unsatisfactory, and probably many bacteria said to have been grown from the uterus really came from the vagina. Dr. Sikes had been using the tubes for taking intra-uterine cultures described by him before the Society in 1903, and had found them very satisfactory. He would like to ask Dr. Bonney whether he had found much difficulty in removing the plug of cotton wool from the top of the tube, as a similar method had been tried at the Queen Charlotte's Hospital some years ago and had not been found satisfactory. However, the twelve test cases mentioned showed it worked well. Dr. Sikes had examined about twenty cases, and agreed with Dr. Bonney that in mild cases with improved methods of taking cultures one often got a negative result, and also that the most frequent association of bacteria was the *Bacillus coli communis* with *Staphylococcus pyogenes*. With regard to the finding of streptococcus so frequently, Dr. Sikes was much surprised, as in not a single one of his cases had he cultivated the organism from the interior of the uterus. As pathologist to the Queen Charlotte's Hospital, he had had good opportunities of observing results with slightly different methods of treatment and was much impressed with the good results obtained by early digital exploration followed by intra-uterine douching. Antistreptococcic serum was usually, so far as he knew, made from a mixture of cultures of several kinds of streptococci, but he agreed that the results were often unsatisfactory, and quoted a recent case where two different makes had been used without any result, but where ferric

chloride had had the most extraordinary effect in rapidly reducing the febrile condition.

Dr. Boxall said he hoped that a clinical account of each case would be furnished in the full text of the paper which had been read. Its value, great as it was, would be much increased by a clinical picture for comparison with the bacteriological investigation of all the cases in the series, and would serve to clear up many of the points raised by Dr. Horrocks. He also thought that the history of the cases would shed further light on the relatively large proportion of primiparæ to be found in the group of slight fever cases in which the temperature did not exceed 102° F. The authors suggest as the probable reason severe lacerations of the cervix, vagina, and perineum. But in addition, he thought that the greater length of labour, the greater amount of bruising of the soft parts, the more severe and painful distension of the breasts, all of which were far more common in first labours, should be reckoned with. Nor should the liability in lying-in women to rises of temperature from purely emotional influences, which were more often brought into play after first labours, be left out of account. He agreed with the conclusion that, as a rule, active curetting of the uterus in puerperal infections is not to be recommended. His experience was that no matter how carefully and completely curetting was done, it was almost invariably followed by an immediate severe exacerbation of temperature, even when combined with potent antiseptic measures. Its immediate effect was to increase rather than diminish the infection. As regards the use of antistreptococcic serums he still preserved an open mind. In the first place, there were many objections and difficulties in the way of its practical adoption in the generality of cases of puerperal infection; in the second place, he was doubtful if any appreciable benefit could be obtained from their use. As far as he knew, no definite indication existed in the clinical history of individual cases as to what is or is not an indication for the use of this or that form of serum. The only guide to the appropriate remedy is to be found in bactericulture; but this takes time, when days and even hours are of importance. Then, having settled what form of serum is required, further time is absorbed in obtaining a supply. Personally, he had never yet employed this method of treatment in his own practice. But three or four years ago he was sorely tempted to essay it in one of the few cases of high temperature which had come under his care at the York Road Hospital. He was not prevailed upon to adopt it in that case, and, though the patient's temperature nearly touched 106° F., next morning it had fallen to 101° F. and was normal within two days thereafter. Now, had a serum been injected when the fever was at its height, the rapid improvement in the patient's condition and eventual recovery might very reasonably have been

attributed to its use. On the other hand, he had several cases where serums have been used without benefit, and certainly one in which the injection of antistreptococcic serum was followed by alarming symptoms of collapse, though the patient ultimately recovered. With the conclusion that autogenetic infection is sometimes a cause of puerperal fevers he agreed, but he thought that this possibility had in some quarters been unduly urged as an explanation of many cases of septic infection. At the same time, he still adhered to the practice of douching the vagina, not before, but early in the course of labour, on the same principle that he took means to disinfect the skin of the abdomen before performing laparotomy. He could see no valid objection to the adoption of this practice, and the advantages are obvious. For this purpose a strong antiseptic solution, such as 1 in 2000 perchloride of mercury, may be used without danger. Even if some of the germs should escape absolute destruction, their virulence would be so diminished as practically to prevent the possibility of autogenetic infection. Bacteriological investigations had proved that the vagina at the onset of labour might contain pathogenic organisms, the presence of which, as in the case of gonorrhœa, is often unsuspected and difficult to detect. For, as long as they are confined to the vagina, they give rise to little or no trouble. But during or immediately after labour they are likely to find an opportunity of becoming injurious by obtaining an entry into the veins and lymphatics. This is specially liable to occur in first labours through tears in the cervix, vagina, and perineum and in instrumental delivery or other intra-uterine manipulation through the conveyance of infection into the uterus and the ready means of absorption there provided. These possibilities cannot be foreseen, but they can be guarded against. Again, gonorrhœa may perchance escape detection, and from the obvious risk in such cases to the infant's eyes, he would be unwilling to discontinue the practice of douching during labour. Severe cases of septic infection have in some quarters been attributed to gonorrhœal infections and often to exposure of the patient to insanitary surroundings before the onset of labour. But his experience was that, provided antiseptic precautions were efficiently carried out and asepsis maintained during labour and afterwards, both gonorrhœal infections and previous insanitary conditions were rendered inoperative and never led to severe septic infection. In his opinion the possibility of autogenetic infection need have no terrors for the obstetrician when antiseptics are efficiently employed.

Dr. Arnold W. W. Lea considered that this investigation was of special value, inasmuch as the cases had been largely observed under the conditions which exist in private practice. He had, three years ago, carried out a similar investigation in 18 consecutive cases of severe puerperal infection.* Strepto-

* 'Trans. North of England Obstet. and Gynæcol. Society,' Dec., 1901.

cocci were present in 12 cases, showing a frequency of 63 per cent., a figure which closely agrees with that of the authors of the paper. In 5 cases staphylococci were present. In 2 cases these were associated with streptococci, in one with anaerobic gas-producing bacilli. He had found the *Bacterium coli commune* in one case. He was surprised that anaerobic bacilli had not been found more frequently, as in cases of placental retention with offensive discharges they had so frequently been discovered, either in pure culture, or associated with streptococci. Dr. Lea had examined the blood in 16 of these cases. In 2 cases only were streptococci discovered, and both ended fatally. He believed that in many cases of fatal infection the blood remained free from streptococci. In these cases the infection was mainly lymphatic, the blood remaining sterile. This was especially frequent in the acute and rapidly fatal types, and might account for the frequent failure of the serum treatment; the streptococci developed in the lymphatic vessels and tissues of the pelvis, producing toxæmia, but the serum is powerless to act directly upon them as it can only be injected into the blood-stream. He did not consider that the use of the curette was contra-indicated in puerperal infection. It was a much more efficient method of cleansing the uterine cavity than the finger. A method of cleansing the uterus almost free from risk was by the bottle brush or "Écouvillon." Curettage, to be of value, must be done early and thoroughly, and it was by no means an easy operation. He had frequently seen rapid improvement follow its use in cases of streptococcic infection of the uterus.

Mr. A. G. R. Foulerton, in reply, said: With reference to the suggestion that their series did not include cases of so-called "sapræmia," he thought in the first place that the word "sapræmia" was objectionable as being a clinical term which did not convey any definite pathological meaning; but he had no doubt that cases referred to as cases of sapræmia would generally come under the heading of what they themselves had referred to as "local infection + toxæmia." The precise point, however, at which the condition of "local infection + toxæmia" merged into that of "local infection + toxæmia and general infection" might be very difficult to detect bacteriologically, and might even not always be well defined clinically. They would also like to emphasise the fact that their series represented 54 cases of every grade of clinical severity which had come consecutively under their notice during some four years; there had been no special selection of cases. With regard to the grouping of their cases into three classes, he would repeat that in the first case this grouping had been determined solely by clinical considerations; but when they came to consider the bacteriological findings also, it was apparent that there was a general relation

between clinical severity and certain types of pathological processes. With regard to their sterile cases, it had been suggested that in some of these cases certain organisms might have been overlooked—*M. gonorrhœæ*, yeast parasites, and streptotricheæ. They had already pointed out in their communication that any error arising from failure to isolate *M. gonorrhœæ* in their cases must be but small; others, certainly, had found *M. gonorrhœæ* in a considerable proportion of cases of puerperal fever, and probably their own series of cases was exceptional in that they had not identified this organism once; but, on the other hand, it was incredible that this organism played so important a part in puerperal infections as might appear from some published statistics; and, important as *M. gonorrhœæ* was, there was no doubt but that there was a tendency, especially in gynæcological work, for this importance to be exaggerated as the result of incomplete means of bacteriological diagnosis, other cocci being confounded with the gonococcus. They did not think that yeast parasites were likely to have been present and overlooked; all the known pathogenic yeasts grew freely on ordinary bacteriological media, and were easily identified. In addition to the case which had been mentioned, in which Colpe found a yeast parasite in a case of chronic endocervicitis, Bossi had found a yeast in a case of chronic endometritis, and Dr. Bonney and himself had isolated a yeast in pure culture from one of their 30 cases of cervical catarrh; but otherwise he knew nothing as to the probability of yeast parasites occurring as causes of puerperal infections. With regard to the streptotricheæ—no case of puerperal infection of such nature had, so far as he knew, been authenticated, nor was the clinical course of cases of puerperal fever of one kind or another suggestive of any of the commoner types of disease due to streptothrix infection. The question of anaerobic bacteria had been fully referred to in the paper, and they still adhered to their opinion that whilst such organisms did occasionally occur in the contents of the uterus in cases of puerperal fever, the results of some investigators who had found them very frequently must be regarded as exceptional. With regard to the infrequency of streptococci as causes of puerperal fever in a lying-in hospital which had been mentioned —that was quite in accordance with what would be expected. They held very strongly that an immense proportion of the cases of streptococcic puerperal fever were avoidable, and the more nearly the conditions of general obstetrical practice approximated to those of a properly conducted lying-in hospital the less frequent would streptococcic infection be, and the lower the mortality from puerperal fever. With regard to active curetting of the uterus in puerperal fever, it was difficult to understand the precise conditions under which the operation could be justified: if the infection were limited to the contents of the

uterus or the surface of the placental site, curetting would facilitate in every possible way infection of the deeper wall of the uterus, with the possibility of more serious mischief than already existed; if the uterine wall were already invaded to any depth, curetting could not possibly do any good and would only increase the chance of deeper invasion still; under the latter condition it was difficult to understand how any active operative interference short of an abdominal hysterectomy could remove the cause of infection. The question of serum treatment was too large a one to discuss in detail then. On the one hand there could not be any doubt at all but that an anti-streptococcic serum did act as a specific cure in some cases of streptococcic puerperal fever; on the other hand, failure was more common by far. But frequent failure was inevitable under the conditions arising from the following facts—an anti-streptococcic serum was specific only when used in an infection by a streptococcus of the same strain or variety as that from which the serum had been prepared; the serum was often used without the least assurance that the case was one of streptococcic infection at all; anti-streptococcic serum, when kept for any length of time, lost certain properties which were necessary for its anti-toxic action; and in addition quite inadequate doses were often given, and serum treatment was very often not commenced until the patient was already moribund. In conclusion, Dr. Bonney and himself wished to thank especially Dr. Boxall for assistance which had been given in the carrying out of their investigations, and he himself had to acknowledge the very large share in their joint work which Dr. Bonney had taken upon himself.

FEBRUARY 1st, 1905.

Edward Malins, M.D., President, in the Chair.

Present—59 Fellows and 4 visitors.

Books were presented by Dr. Herbert R. Spencer and Dr. S. Gache.

George Burnett Currie, M.D.Aber., was admitted a Fellow.

The following candidates were proposed for election: Thomas Crisp English, F.R.C.S., M.B.Lond.; Arthur W. Fuller, M.D.Edin.; Alexander B. Leakey, M.B., B.Ch. Edin.; Robert Martin McQueen, L.R.C.P.Lond., M.R.C.S. Eng.; William Robert Orr, M.D.R.U.I., M.Ch.; George Rice, M.D.Durh., M.R.C.S., L.R.C.P.; Darwall Smith, M.B.Cantab.; William B. Thomson, M.B., B.Ch.Glasg.; Charles George Webster, Capt.I.M.S., L.R.C.P. and S.Ed.

A NEW OPERATION FOR THE CURE OF VAGINAL CYSTOCELE.

By Ernest W. Hey Groves, M.D., B.S.Lond.

Of the many conditions of prolapse and displacement of the genital canal, that which affects the anterior vaginal wall and involves the posterior wall of the bladder is the one which hitherto has been least amenable to operative treat-

ment. Vaginal cystocele exists under two conditions, viz. that in which it only forms part of a uterine descent, bulging out with the anterior vaginal wall, and that in which it forms a distinct hernia or pouch, pushing down the vagina before it, but leaving the uterus in a normal position. For both these conditions several operations have been devised, such as Sims' V-shaped elytrorrhaphy, the ordinary elliptical anterior colporrhaphy, and Stoltz's operation, where a circular piece of the anterior vaginal wall is removed and the gap closed by a purse-string suture. All these methods are essentially the same, and consist in removing a greater or less extent of the anterior vaginal wall and bringing the margins of the gap together, so that the support left for the remedy of the prolapse is a scar of the vagina together with the general narrowing of the vaginal outlet. But I think it is recognised that the remote results of such operations are disappointing. And if we regard the cystocele as a hernia, whose radical cure we have to undertake, it is not surprising that methods which depend for their success upon the fixation of so distensible a structure as the vaginal wall should lead to failure. For it is evident that any cause which has sufficiently distorted a normal vagina to produce a cystocele is capable of distorting a restored vagina to reproduce the hernia.

But the true floor of the pelvis is formed by the levatores ani muscles, through the gap between which the urethra and vagina emerge. Every prolapse of the vagina and of the bladder can only result when this gap has been widened either by the gradual pressure from above of a heavy or retroverted uterus, or by injury received during parturition. And it would seem, therefore, more natural, in seeking to remedy these conditions, to deal primarily with the more fixed structures of the pelvic floor, than merely to deal with the movable organs which protrude through it. And I think it is probable that whatever measure of success does follow such operations as anterior colporrhaphy depends chiefly on the indirect narrowing of the outlet of the pelvic floor. In the radical cure of an ordinary abdominal hernia

after dealing with the peritoneal sac the most important procedure, and that on which the success of the operation depends, is the closure of the muscular gap through which the hernia has protruded. And where the situation of the hernial orifice admits of this being done efficiently, as in the case of an oblique inguinal hernia, the result is correspondingly good; whereas when it is difficult to reconstruct a firm muscular plane, as in the case of a femoral, direct inguinal or umbilical hernia, the result is, too often, a failure.

Now in the case of hernia of the bladder through the anterior vaginal wall there is ready to hand a most efficient muscular plane formed by the levatores ani muscles, which bound the hernial orifice or neck of the sac on either side.

The levator ani muscle is usually described as arising from the pubis, the "white line" of the pelvis fascia, and the spine of the ischium, and as inserted into the perineum, rectum, and ano-coccygeal raphe. And it is represented as a muscle whose direction is principally vertical. But it is more correct to consider that the main origin is from the pubis and the main insertion into the coccyx, its direction being horizontal, and its fibres forming a sling for the rectum and vagina.

Morphologically it represents the flexor caudæ muscle of tailed Vertebrates, and may be divided into four parts—the *pubo-rectalis*, from the pubis to the perineum; the *pubo-coccygeus*, from the pubis to the anus and ano-coccygeal raphe; the *ilio-coccygeus* and *ilio-sacralis*, from the white line and ischial spine to the coccyx and sides of the sacrum.*

The iliac origin of the last two portions have disappeared. (Fig. 1 shows the disposition of these several parts in relation to the pelvic viscera, and it shows well the horizontal disposition of the main fibres.)

Regarded from below after the superficial perineal muscles and the triangular ligament with the overlying

* Cunningham's 'Text-book of Anatomy,' p. 411.

structures have been removed, the two muscles are seen to form the pelvic floor, in the centre of which lies a median slit, through which the urethra and vagina emerge. At their origin from the pubic bones the two muscles are 2 cm. apart, at the centre of the vaginal outlet 3 cm., and the central point of the perineum 4½ cm., this latter figure referring to the main bundle of the puborectalis muscle, and not to the thin median fibres which actually meet one another in the perineum. At these three points the lower border of the main muscle lies 1·5 cm., 2·5 cm., and 3·5 cm. deep to the surface of the perineal structures.

A horizontal section of the urethra, vagina, and rectum a short distance above their termination, shows how these structures are embraced by the horizontally disposed fibres of the levatores ani.

The lower border of the muscle can easily be felt, and in a relaxed vaginal outlet demonstrated by the fingers.

The various steps of the operation I am about to describe will now, I think, be quite clear.

A transverse incision is made from one labium majus to the other, about 3 cm. behind the urethral orifice. The incision divides the whole thickness of the vagina. The two margins of this incision are then retracted upwards and downwards, and with the finger or handle of a scalpel the urethra and bladder in front are separated from the vagina behind. The margins of the levatores ani muscles are then sought for and defined in either angle of the wound. It will be found that they can easily be brought into apposition with little or no tension. Two or three mattress sutures are then passed right through both muscles as far from their margin as can be done without undue tension, and tied on the outer surface of one or other. These will lie about 1·5 cm. from the margins of the muscle, which are then united by fine interrupted sutures. This forms a median muscular mass about 2 cm. long and 1·5 cm. thick, lying beneath and supporting the base of the

bladder. The margins of the original incision are now united by catgut after any redundant vaginal mucous membrane has been removed. The cicatrix lies in a very superficial position, when a little gauze packing (which is changed every time the catheter is passed) serves to keep the wound clean.

The first case in which I performed this operation was nearly two years ago. The displacement has not recurred, and moreover the woman has recently been delivered of a full-term living child, and the pelvic floor is still quite sound.

Dr. CULLINGWORTH agreed that the various operations hitherto undertaken for the cure of cystocele were unsatisfactory in their ultimate results, and that they were, for the reasons that had been given, bound to be ineffectual as a means of permanent cure. He was, therefore, quite sure that the profession would welcome any suggestion towards a more radical and scientific treatment. The principles upon which the operation which had just been described was based appeared to be sound, but there were one or two points on which he should like a little further enlightenment. In the first place, it was stated that the first step of the operation consisted in making an incision through the whole thickness of the vaginal wall, and then effecting a separation of the vaginal wall from the urethra and the lower part of the bladder. This separation was said to be very easy of accomplishment. If that were found to be habitually the case it would surely be necessary to modify the current anatomical description of the parts concerned, according to which the vaginal wall is so intimately blended with the urethra and lower portion of the bladder that it is impossible to separate them. Another thought that had occurred to him as as he listened to the communication was that in women of the class and at the age of the majority of those who come to the out-patient room suffering from cystocele, it would not be very easy to find the separated borders of the levatores ani, the fibres of which have by long stretching often become attenuated beyond recognition. The age of the patient in the only case of which the details had been given had not been mentioned, but he presumed from the ease with which the muscle had been discovered that the subject was comparatively young. The only true test of the value of a plastic operation was the time test, and he would suggest a supplementary communication after the lapse of a few years (say five years), giving an account of the condition of the parts at that time.

Dr. Hey Groves, in reply, stated that the patient's age was 35, but that he anticipated that the operation would be even more serviceable in old women, because in them the levatores ani could be stitched together for a greater extent regardless of the vaginal outlet. He had not found any difficulty in separating the anterior vaginal wall from the urethra and bladder.

A WANDERING SPLEEN SIMULATING AN OVARIAN TUMOUR AND CAUSING RETROVERSION OF THE UTERUS.

Shown by Dr. Frank E. Taylor.

I recorded two cases of enlarged wandering spleens occupying the pelvis and simulating pelvic tumours at the meeting of this Society in May, 1904, showing the spleen, which had been removed in one of these cases from a patient in the Chelsea Hospital for Women. Five months later another case of wandering spleen simulating an ovarian tumour was admitted into the same institution. The spleen was removed, and I now submit it to your inspection.

It is interesting to note that the spleen, whilst occupying the pelvis, caused the uterus to be retroverted. Although there are many recorded cases of enlarged wandering spleens occupying the pelvis and simulating pelvic—usually uterine or ovarian—neoplasms, yet it is quite a rarity for this condition to give rise to retro-displacement of the uterus—the only cases with which I am acquainted being those recorded by Bland-Sutton, Clarence Webster, Plücker, and Runge.

S. B—, married, aged 29, was admitted into Chelsea Hospital for Women under the care of Dr. Victor Bonney, on September 18th, 1904, complaining of a more or less constant dull, aching pain in the left side, in the back,

and in the legs. This had been present, on and off, for several years, and had several times caused her to seek medical advice; it was, however, always considered by her doctor to be indigestion and flatulence.

The patient had never been pregnant, but had only been married six months. Menstruation was always regular until the last period, which appeared on the 29th, a fortnight earlier than usual, and was very profuse, several small clots being passed. It lasted fifteen days and was accompanied by great pain, so that on the first day of the period she had to lie in bed. There was also marked constipation.

On admission a systolic bruit was heard at the apex. The lungs were normal.

There was some resistance and tenderness on palpation in the left iliac fossa; otherwise abdominal examination was negative, there being no abdominal swelling or tumour present.

Per vaginam the cervix was felt lying low down and forward, the uterus being retroverted. It was also tender and slightly enlarged. In the left lateral and anterior fornices a softish tumour about the size of a hen's egg could be felt. It was tender on pressure.

On September 20th these findings were confirmed by examination under an anæsthetic, and the swelling was diagnosed as a cystic tumour of the left ovary, lying to the left and in front of the uterus, causing retroversion of this organ.

On September 27th Dr. Bonney opened the abdomen in the middle line below the umbilicus. The slightly enlarged spleen was found in the left side of the pelvis, and in front of the body of the uterus, which was lying retroverted.

The pedicle of the spleen was slightly twisted. This was transfixed by a silk ligature, and the spleen was then removed.

There were some adhesions round the left ovary and tube. These were broken down. The uterus was freed

and lifted up into position. The right appendage appeared to be quite healthy.

Recovery was rapid and uneventful, and the patient left the hospital quite well on October 13th, 1904.

The removed spleen measured along the convexity $6\frac{1}{4}$ in. × 3 in. It weighed 8 ounces. Its peritoneal surface was rough and ragged from perisplenitis. The hilum was situated near one end of the spleen, and was so deep that it almost entirely cut off that end of the spleen. Had the notch extended a little deeper, a portion of the organ would have been completely detached, and would then have formed an accessory spleen.

Section of the organ showed it to be composed of normal splenic tissue.

The PRESIDENT said that the difficulty in making an accurate diagnosis between an enlarged spleen and ovarian tumour was sometimes greater than would appear. He called to mind a patient he had seen some years ago with Sir Spencer Wells. A diagnosis was made of ovarian cystic tumour, but on operation it turned out to be a much enlarged spleen. When authorities of such reputation fell into error it was not surprising that similar mistakes should occasionally be made by others. He remembered a case alluded to by Dr. Thomas Wilson, where he made the same fault, but finding the spleen much displaced and the pedicle axially rotated he removed it with complete success.

Dr. HEYWOOD SMITH said that a similar case was sent up to him from the country as an ovarian tumour. After careful examination he made out that the tumour was the spleen displaced. He asked Mr. Bland-Sutton to operate for him, and he removed the spleen and the patient did very well and remained so.

TUBERCULOSIS (PROBABLY PRIMARY) OF THE BODY OF THE UTERUS IN AN ADULT.

Shown by Mr. J. BLAND-SUTTON.

IN November, 1904, I saw with Mr. H. D. Farnell (Eastbourne) a spinster aged 46 who had been suffering

from menorrhagia for two and a half years. Latterly the bleeding had become very profuse and long-continued. The body of the uterus, enlarged and rounded, could be felt in the hypogastrium. These facts led us to believe that the patient had a submucous fibroid in the uterus, and as the bleeding had become more profuse of late and was attended with fever, we suspected that some degenerate change had occurred in the tumour. The cervix uteri was small and normal, the os being a mere dimple.

Abdominal hysterectomy was performed January 2nd, 1905, with the assistance of Mr. H. D. Farnell. The uterus had firm and troublesome adhesions to the rectum and bladder. The ovaries and tubes were small and shrunken; they were left. The whole of the cervix, except a small piece of the vaginal portion, was removed. The patient made an uneventful recovery.

On opening the uterus we saw at once that the enlargement was not due to a fibroid; its walls, as shown in the drawing, are hyperplastic, and a rounded mass protrudes from the anterior wall into the uterine cavity.

This mass is not encapsuled, but though sessile on the wall of the uterus is mainly confined to the endometrium ; but the disease extends into the cornual recesses, and in these situations it invades the uterine wall and extends into the terminal sections of the Fallopian tubes. On examining the cut surface of the mass patches of caseation are easily seen.

Dr. Gabbett, who was present at the operation, kindly undertook the microscopical investigation of the uterus, and found it to be a tuberculous mass arising in the endometrium. Characteristic giant-cells and epithelioid cell-systems were found and detached pieces of uterine glands. He also succeeded in finding tubercle bacilli.

The manner in which the disease was localised to the corporeal endometrium in this case and caused the uterus to enlarge, bleed, and simulate a degenerating sub-mucous fibroid, is its most important clinical feature.

Dr. Peter Horrocks said he had seen several cases of tubercle of the lining of the uterus, but in all the endometrium of the cervical as well as of the corporeal portion had been affected. Moreover, the clinical features had been more like those of cancer than of fibroid of the uterus.

A CASE OF INFANTILE INTERSTITIAL PNEUMONIA.

Shown by Dr. A. W. Sikes.

Dr. Sikes showed the lungs of a child which was born with the above condition, and also water colours of one lung and of a microscopical section.

The mother of the child, a single woman, had been confined in Queen Charlotte's Hospital ; the child was small, and there had been no difficulty in delivery.

At birth, spots were present on the body of the child, eruption and bullæ on the arms and legs, and the hands and feet were partly denuded of epithelium.

DESCRIPTION OF PLATE IV,

Illustrating Dr. Sikes's case of Interstitial Syphilitic Pneumonia.

Specimen of lung of child.

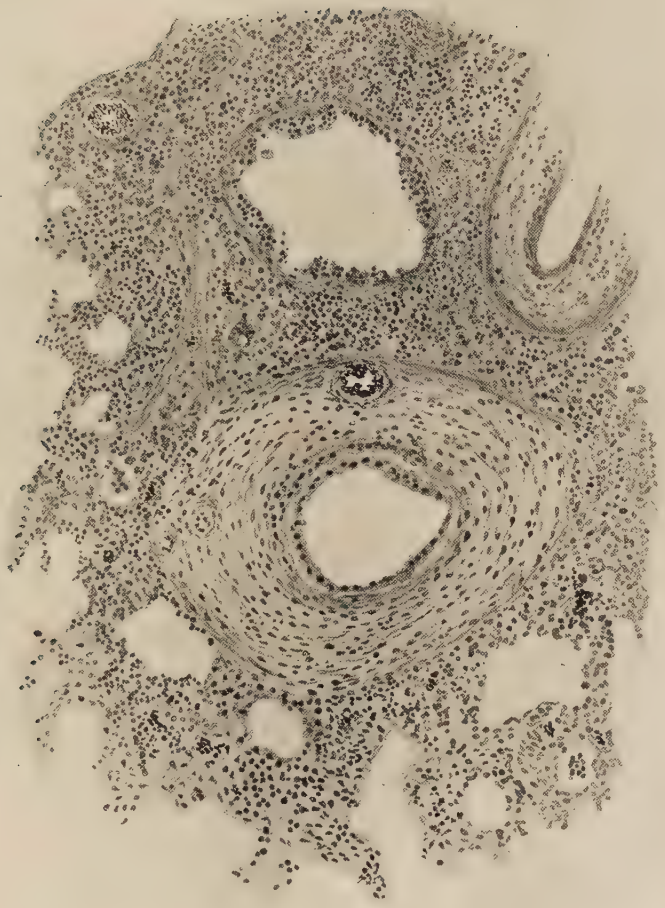
Illustrating Dr. A. W. Sikes's case of infantile interstitial pneumonia.

Adlard & Son, Imp.

DESCRIPTION OF PLATE V,

Illustrating Dr. Sikes's case of Interstitial Syphilitic Pneumonia.

Specimen of microscopical section of lung.



Illustrating Dr. A. W. Sikes's case of infantile interstitial pneumonia.

Adlard & Son, Imp.

At the *post mortem* the lungs were found to be entirely solid, of a mottled, greyish-white appearance; they retained the exact shape of the pleural cavities, and resembled a wax cast of the latter. On section, the appearance was much the same as on the surface, homogeneous consolidation of a greyish-white colour. The microscopical section showed the vessels, the bronchial walls, and the alveolar walls very much thickened; the cells showed round and slightly elongated nuclei, which, if the child had lived, would probably have formed fibrous tissue. The bronchial mucous membrane showed no ciliated epithelium, but budding, rounded cells in two or three layers. Epithelial and round cells filled up most of the alveoli. The whole lung appeared to be undergoing a slow syphilitic inflammatory process.

The liver and the spleen were enlarged, but there were no other signs of syphilis present.

No history of syphilis was obtained from the mother, and there were no signs of the disease present while she remained in hospital. The child had lived for a quarter of an hour, which was remarkable considering the condition of the lungs.

Dr. Sikes said that, although he had performed many *post mortems* on children, he had never seen the condition before, and he did not think there was a specimen of the disease in any of the London museums.

Annual Meeting.

The audited Report of the Treasurer (Dr. G. E. Herman) was read.

Mr. Butler-Smythe, in moving the adoption of the Treasurer's Report, congratulated the Society on its Balance Sheet, which he thought was most satisfactory. He wished to point out, however, that owing to certain coming events, it was improbable that the next Report

would be so encouraging, and he urged that the Fellows would endeavour to introduce new blood into the Society.

Dr. W. Rivers Pollock having seconded the motion, the Report of the Treasurer was received and adopted.

Report of the Hon. Librarian.

The work of the library has been carried out satisfactorily during the past year.

The total number of volumes in the library amounts to 6039, of which 63 are periodicals. Of these, 20 are publications bound in two volumes annually, and the remaining 23 in one volume annually.

During the year 54 volumes have been added, 33 of which have been presented and 21 purchased.

The number of Fellows visiting the library has slightly increased, and a larger number of books have been taken out than in previous years.

Arthur H. N. Lewers.

The Report of the Hon. Librarian (Dr. A. H. N. Lewers) was received, and its adoption was moved by Dr. John Phillips, seconded by Dr. G. Drummond Robinson, and carried.

Report of the Chairman of the Board for the Examination of Midwives.

The number of women examined by the Board in 1904 was 1861. Of these 1507 passed, 331 failed, and 23 were absent.

Since 1901 the rate of annual increase in the number of candidates has been about 300. Before this date it never reached 100 except in 1899, when it was 154. A table of the numbers examined, passed, and absent in each year for the thirty-three years during which the examination has been held is appended to this Report, and Dr. Boxall has constructed a chart covering the same period.

OBSTETRICAL SOCIETY OF LONDON.

Abstract of Receipts and Payments for the Year ending December 31st, 1904.

RECEIPTS.

1904.	£ s. d.	£ s. d.
To balance from 1903 . . .	116 13 3	
Less cheque not presented .	73 5 11	
		43 7 4
„ (1) Annual Subscriptions, realising		396 18 0
„ (2) Composition Fees . .		21 0 0
„ (3) Midwives' Examination Fees		1897 15 0
„ (4) Sale of 'Transactions' (Longmans) . .	120 13 6	
Do. do. (Society) .	4 8 11	
Do. Midwives' Questions .	1 12 0	
Do. „ Regulations	0 1 3	
		126 15 8
„ (5) Registration Fees, .		653 14 9
„ (6) Interest on Debentures .	80 17 11	
Ditto on Consols . .	14 5 8	
Ditto on L.C.C. 3% Stock	23 0 10	
Ditto on Deposit . .	8 18 8	
		127 3 1

Audited and approved.

Newson-Smith, Lord, & Mundy,
Chartered Accountants.

January 18th, 1905.

£3266 13 10

PAYMENTS.

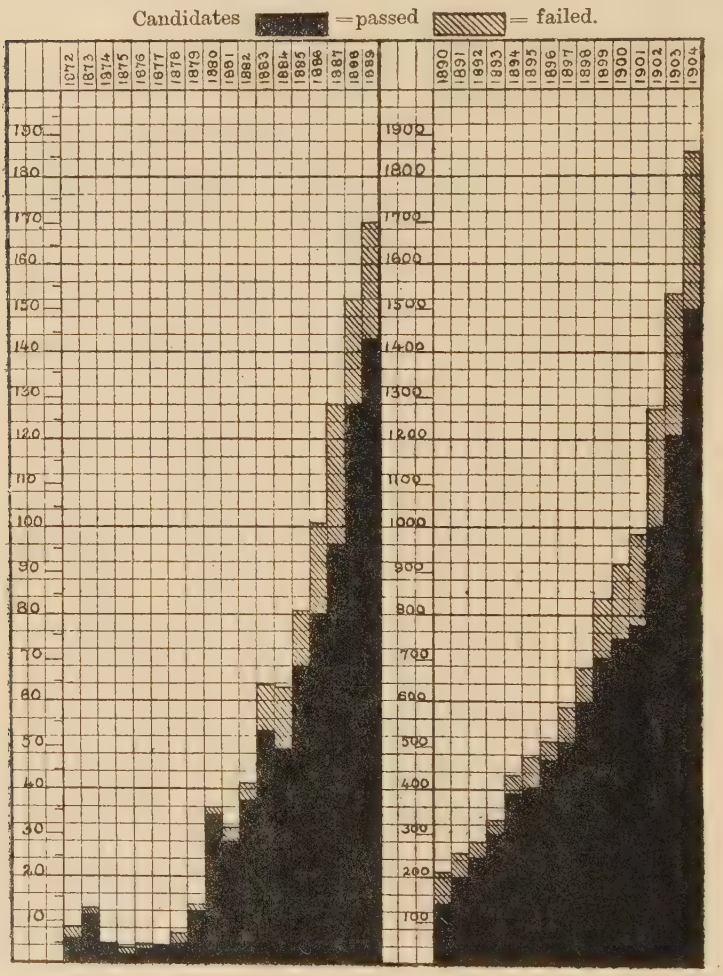
1904.	£ s. d.	£ s. d.
By (1) 'Transactions,' Vol. XLV, Printing, Paper, Binding, Delivery, and Illustrations .		231 2 3
„ (2) Library:		
Books purchased . .	45 13 7	
Binding . . .	10 5 3	
		55 18 10
„ (3) Museum and Library:		
Rent	200 0 0	
Librarian's Salary . .	180 0 0	
Repairs to Furniture, Cleaning, Coals, and Lighting	33 14 10	
		413 14 10
„ (4) Expenses of Meetings .		25 2 5
„ (5) Stationery, Stamps, and Printing . . .		50 3 0½
„ (6) Examination of Midwives:		
Fees paid to Examiners .	893 4 6	
General Expenses . .	239 17 11½	
		1133 2 5½
„ (7) Extraordinary Expenses .		14 9 3
„ (8) Registration:		
Central Midwives Board Fees . . .	436 10 0	
General Expenses . .	126 0 3	
		562 10 3
„ (9) Banking Expenses . .		5 8
„ Balance at Bank . .	130 4 10	
On Deposit . .	550 0 0	
		680 4 10
		£3266 13 10

G. Ernest Herman, M.B., *Treasurer.*

OBSTETRICAL SOCIETY'S EXAMINATION.

1872 TO 1904.

N.B.—Note the difference in scale of the two halves of this chart. The second half is reduced to one tenth of the scale of the first half so as to allow of its inclusion in one page.



One of the midwives on our register has been deprived of her certificate under the following circumstances: Edith Gregory, Matron of the Winchester Lying-in Charity, was found to have signed six schedules certifying that the candidates named therein had each attended 20 cases of labour, when the following numbers only had been actually attended: 9, 13, 9, 16, 10, and 7 cases respectively.

On February 24th the last examination to be held by this Society will be concluded, and the Obstetrical Society will have earned the right to retire with satisfaction from its great work in this field. It has succeeded in raising the standard of education of the midwives of this country, and in helping to safeguard its mothers and new-born children; and if the Society had never done more than this it would assuredly not have lived in vain.

I cannot close this Report without thanking the examiners with whom I have had the honour of being associated for the past four years. They have done their duty —a tedious one—with the greatest consideration for the candidates, and, at the same time, with all possible care to pass only those who had an adequate practical knowledge of their work.

W. R. Dakin.

February, 1905.

Table showing Result of Obstetrical Society's Examination for each Year since its Institution in 1872.

Year.	Candidates.	Passed.	Failed.	Absent.
1872	8	6	2	—
1873	12	11	1	—
1874	4	4	0	—
1875	3	2	1	—
1876	4	3	1	—
1877	4	4	0	—
1878	6	5	1	—
1879	13	12	1	—
1880	36	34	2	—
1881	30	27	3	—
1882	42	37	5	—
1883	64	53	11	—
1884	63	49	14	—
1885	82	68	14	—
1886	102	80	22	—
1887	127	96	29	2
1888	153	127	22	4
1889	170	143	25	2
1890	207	159	43	5
1891	258	204	52	2
1892	289	252	34	3
1893	339	296	40	3
1894	432	390	40	2
1895	467	420	33	14
1896	511	461	40	10
1897	590	523	49	18
1898	688	604	75	9
1899	842	705	119	18
1900	925	754	155	16
1901	980	769	195	16
1902	1274	996	260	18
1903	1545	1221	298	26
1904	1861	1507	331	23
33	12131	10022	1918	191

The Report of the Chairman of the Board for the Examination of Midwives was adopted on the motion of Dr. Amand Routh, seconded by Dr. Stevens.

The following Fellows were declared elected to serve on the Council of the Society for the Session 1905–6:

President.—W. R. Dakin, M.B.

Vice-Presidents.—A. H. Freeland Barbour, M.D. (Edinburgh); Amand Routh, M.D., B.S.; William Japp Sinclair, Knt., M.D. (Manchester); Albert C. Butler-Smythe.

Treasurer.—George Ernest Herman, M.B.

Chairman of the Board for the Examination of Midwives.—John Phillips, M.D.

Editor of 'Transactions.'—Herbert R. Spencer, M.D.

Honorary Secretaries.—Montagu Handfield-Jones, M.D.; Robert Boxall, M.D.

Honorary Librarian.—Arthur H. N. Lewers, M.D.

Other Members of Council.—Henry Russell Andrews, M.D.; Murdoch Cameron, M.D. (Glasgow); Charles James Cullingworth, M.D.; Ernest Rumley Dawson; Thomas W. Eden, M.D.; John Henry Ewart (Eastbourne); John Shields Fairbairn, M.D., B.Ch.; Charles Arthur Goullet; William Sampson Handley, M.S., F.R.C.S.; David Berry Hart, M.D. (Edinburgh); Arnold W. W. Lea, M.D. (Manchester); Cuthbert Lockyer, M.D., B.S.; Charles Hubert Roberts, M.D.; David W. Roberts, M.D.; Frank Rushworth, M.D.; Mary Ann Dacomb Scharlieb, M.D.; Walter C. Swayne, M.D. (Bristol); Charles J. Wright (Leeds).

Mr. Alban Doran proposed, and Mr. Bland-Sutton seconded, a vote of thanks to the retiring Vice-President, Dr. Herbert R. Spencer, and to the other retiring members of Council, Dr. Sydney Beauchamp, Dr. Biggs, Mr. A. Corrie Keep, Dr. W. Rivers Pollock, Dr. H. Campbell Pope, and Mr. E. Reynolds Ray.

The President then delivered the Annual Address.

ANNUAL ADDRESS, 1905.

In reviewing the position of the Society for the past year I think that we are entitled to consider it to be highly favourable, both in the activity displayed and in the character of the work accomplished. Death, too, has been lenient, as compared with other years, in the insistence of his calls. These indications in our favour warrant our aspirations, and strengthen our confidence at the commencement of another Session.

We have now, as the roll shows for the summary of the year 1904—honorary Fellows, 11 ; ordinary Fellows, 610 ; in all 621. During the year we have lost by death 7 Fellows, 21 have resigned, and there have been 8 erasures. Sixteen new Fellows have been elected, thus bringing our total at the present time to—honorary Fellows, 13 ; ordinary, 588 ; in all 601.

I should like in this connection to emphasise the necessity of replenishing the losses, and giving strength to the Society by the addition of fresh Fellows.

Individually much can be done in this direction if the advantages of Fellowship could be made known to the newcomers in localities. Practitioners come to learn by experience that an intimate knowledge of the art of midwifery is the backbone of general practice, that it is the foundation upon which the extension of their work is based. The treatment of women and children forms by far the largest share of the daily routine of the medical man's duty, and in proportion to the aptitude and knowledge exhibited in this direction so much greater is the amount of general success to be obtained. The public in

the present day have a shrewd appreciation of the methods and the habits of treatment. They are not slow, when opportunity offers, to appraise these, and to throw an increased weight of responsibility and demand for intelligence upon the practitioner. The younger members of our profession are sometimes prone to think that the passage through the portals of a qualifying institution is the finality of their educational efforts. Time shows that in this flattering assumption they lean on a broken reed, and that this period is only the beginning of the serious part of their individual life—a life which as far as medical men are concerned is one of arduous duty and constant sacrifice; a life realised only in its highest sense by steady toil and persistent travail, an earnest striving to keep pace with the march of the ever resistless progress of the age in which we move. Becoming Fellows of this Society, observing, and taking part in the discussions, they can reach into line with modern thought, and gather ideas on subjects of much mutual importance. Attrition with those who have community of pursuits and interests cannot fail to be valuable. Interchange of views and opinions in relation to details of daily occurrence in practice gives knowledge pleasantly acquired and easily remembered.

One of my distinguished predecessors remarked in his address that the duty of President was rather to record than to criticise. I shall attend to the hint thus given as far as possible, and proceed to summarise the Society's work during the second year of my office.

You have heard the various Reports of the committees read, and I trust that you will gather from them indications of the welfare and solid prosperity of the Society. We are greatly indebted to the committees for the conduct of this important part of our business; their labours facilitate the administration, and give us accurate information of the working of their respective functions.

The Report of the Librarian.—This is satisfactory and equal to the average of past years. The library affords ample means of reference, and ready access to informa-

tion on subjects connected with our pursuits. The makers of history are always worth recalling. I think that the study of the lives and individuality of those who have aided in building up the fabric of our present knowledge is worthy of more wide perusal, while, too, it points the path by which progress is gradually and effectually attained.

Finance Committee.—In reference to the Treasurer's Report, I may observe that it is always a matter of comfort to know that our house is in order, and that our financial needs are adequately met. Our wants necessitate a considerable expenditure, which, hitherto, we have been able to provide for without anxiety. But, while we feel a present sense of security, it behoves us as prudent conservators of our interests to look also to the future, and to make provision for the maintenance of the position we have acquired. There has been, as you are aware, a large addition to our funds from the examinations for the midwives certificates. With the operation of the Midwives Act these examinations have come to an end, and we cannot supplement this accession of funds from any other known source. It is true that the amount so derived has been set aside and judiciously invested, but this abnormal influx has now stopped, and we lapse into the ordinary relations of income and expenditure.

Redundant years are always followed by lean years. In this respect we feel that it will be necessary to adjust our affairs with care and economy. In its truest sense, as defined by Ruskin,* "Economy no more means saving money than it means spending money. It means the administration of a house, its stewardship—spending or saving, that is, whether money or time, or anything else, to the best possible advantage." Our best advantage is, therefore, to cultivate the Society's work and to make the meetings sound, interesting, and attractive; to recognise this as our capital, and in the details concerned to bear in

* 'A Joy for Ever.'

mind that efficiency with economy will still give us a substantial return for our well-spent efforts.

Board for Examination of Midwives.—With regard to the Report of this Committee, you will doubtless have noticed in the Report the exceptional activity which has marked their proceedings during the past year; it has resembled an expiring impulse in the strain it has evoked. 1861 candidates submitted themselves for examination, of which number 1507 passed and 331 failed. Of those who have presented themselves since the year 1872 to the end of 1904 the total stands as 12,131, of which number 10,022 were successful. In the vast amount of work essential to this duty we may congratulate the Board upon the manner in which it has been accomplished. Added to the unusual work of the past year there has been much laborious detail in carrying out the offer made by the Board to those holding the certificates of the Society, that on sending these for verification the Society would engage to have the owners' names placed upon the Roll of Midwives. A very large number availed themselves of this generous and useful undertaking. To the Chairman of the Board, Dr. Dakin, we owe our thanks for the fairness and impartiality with which he has upheld the dignity of the Society, as well as to the zeal with which he has imparted his energies to this laborious task. The *finale* comes with a plaintive note. It ceases to be, as we have pledged ourselves that it should do, in the face of long-urged legislative changes. The work will be carried out under another Authority. The old order changeth; with the new we have passed under another *régime* to the continuance of the objects this Society had in view when the examination was first instituted, thirty-five years since. In proposing the adoption of the Society's scheme in 1872, Dr. Graily Hewitt remarked: "This Society was instituted for the purpose of promoting knowledge in all that relates to the subject of obstetrics and the diseases of women and children. The institution of this examination, he felt sure, would do very much practically to carry out these great

objects." How far this prediction has been fulfilled it is impossible to gauge; but we are, and can be, fully satisfied, that some credit is due to this Society—that by this means valuable knowledge has been disseminated throughout the country, and an immense educational impetus given to the objects for which this examination was founded.

That the present Midwives Act should be difficult to administer may be taken for granted when we bear in mind the history of its adoption and the complexity of the matters with which it deals. Gradually, yet surely, these intricacies will be overcome in time, when the provisions of the Act become more fully understood and recognised, and when with watchful care and guidance the machinery gets into smooth working order. No innovation of such deep importance can be established without a knowledge of its practical application, and if a fair opportunity is allowed we may be assured that the wisdom and beneficence of its objects will become gradually acknowledged. One effect of the working of this Act will have some bearing upon the general practitioner. This is not the place to criticise the critic, but I venture to think, in spite of all that has been said and written upon this point, that it will be found ultimately to have a salutary bearing upon the standard of the relations between the doctor, the midwife, and the patient. There is no monopoly of intelligence in our profession. And it is well, also, to keep in mind that in the present day there is a fading belief in what are called vested interests. The greatest good to the greatest number is a doctrine preached with vigour by social reformers; it is becoming more universally accepted; it finds expression with a depth of conviction and degree of resolution in the powerful body of opinion and sentiment which has been behind all the great social and political reforms of our time. Social evolution cannot be retarded or ignored. The tendency requiring the increasing subordination of the individual to the society, as Benjamin Kidd puts it, is an element which it is impossible to obscure. Prominent in this movement is the diffusion of those altruistic

feelings which involve the willingness to sacrifice individual welfare in the cause of the needs of others—an advance which in recent times has attained a development previously unexampled in the history of our race. To expect to reap where we have not sown, to adopt an antagonistic attitude to the cause of the general good to the community, is unworthy of the highest traditions of our profession ; equally so is the denial of a fair field and equality of opportunity to those who seek to expand the developmental forces that work in human society. Furthermore, is it not weak and inglorious to show hostility to those who happen to be the media through which these irresistable powers speed their destined course ?

The product of the Society's work during the past year has been fully up to the standard of former years, both from a scientific and practical aspect. The patient investigation, the clear insight, and the shrewd deductions which have marked the greater part of the work brought before us affords gratifying proof that the object of our union has been abundantly upheld, and that progress has been a feature of our meeting. It is a noteworthy fact that the attendance at our meetings has been greater than that of any other society coming together in the same building. I have taken the same plan as before in recording the year's work, aided by the notes I have taken at the time of the meetings.

The year commenced with a paper by Dr. H. R. Spencer on "Fibro-myoma of the Intra-abdominal Portion of the Round Ligament of the Uterus." The tumour from the case described by the writer was taken from a patient aged 24, and weighed 6 lbs. Dr. Spencer pointed out the rarity of this particular form of growth, and commented on the details of thirteen similar cases which he had collected from various authors. More than half the cases were complicated from uterine fibroids, masking the easy recognition of their real position. As one feature of the diagnosis, Dr. Spencer pointed out that the tumour was in front of the uterus, a position rare in ovarian tumours,

with the exception of certain dermoids. He stated that the distinction between these tumours and ovarian tumours is not by any means easy; indeed, this mistake had happened in all the cases in which a diagnosis was made, except when it was mistaken for a uterine fibroid. Mr. Doran, in the discussion which followed, thought that these tumours were not so rare as had been supposed, because they were sometimes overlooked. He was of opinion that they might represent teratological conditions in arrested development, and abnormal uteri, and that Falk had shown that uterus bicornis is often caused by hypertrophy of the round ligament in fœtal life. In operating, he agreed with Dr. Spencer as to the advisability of uniting the two ends of the ligament where practicable, and that it was wrong to tie the stump and allow the outer end to return into the inguinal canal. Mr. Handley agreed in the impression that these tumours were teratological, and suggested that possibly fibro-myoma of the broad and of the round ligaments were genetically identical, that both varieties might originate from accessory Fallopian tubes. To this view Dr. Spencer took exception, as, in the first place, it was not sufficiently proven that accessory Fallopian tubes existed, and that even if it were it would be foreign to the explanation of the cases in question. Dr. Spencer paid a well-merited tribute to Mr. Doran's valuable work on fibroid tumours of the uterus and broad ligament, in which there was much in which he was interested and in agreement. At the same meeting Dr. Victor Bonney read a short communication on "A Case of Pyometra in One Half of a Subseptate Uterus." Such cases are evidently very uncommon. In this instance the difficulties surrounding the diagnosis were exceptionally complicated, the patient being supposed to be pregnant, with the uterus imbedded in adhesions. Nor were the difficulties lessened by having to decide the best line of treatment to adopt; for when the abdomen was opened, the fundus uteri freed from adhesions and incised, a quantity of pus escaped. The uterine sac was stitched to the abdominal

wound and drained. Alternative courses were presented, but apparently the end justified the means, for the patient made a good recovery. Dr. Arnold Lea subsequently related a case of abscess in the wall of the uterus in a patient who had borne eight children previously. The abscess was situated in the posterior wall of the uterus; it ruptured suddenly into the peritoneal cavity six weeks after delivery. The abdomen was opened, and abdomino-vaginal drainage established with success. Dr. Amand Routh narrated a somewhat similar case occurring in a patient who had become pregnant, with the uterus fixed by parametric exudation. He succeeded in emptying the uterus by the vagina, with good results. He was inclined to think that Dr. Bonney's case was rather one of abscess of the wall of the uterus, similar to that described by Dr. Lea.

Dr. Mary Scharlieb gave an example of her acumen and diagnostic powers at the meeting in February by the exhibition of a specimen of unruptured tubal pregnancy, with a description of the case. The specimen was removed from a patient aged 30, who had borne six children. It was round in shape, situated at the inner third of the right Fallopian tube, and contained an embryo of twenty-four to twenty-eight days' development. The patient had suffered from severe pain, vomiting, and some continuous hæmorrhage from the uterus, but no decidua was expelled. Dr. Cullingworth considered it very desirable that such cases should be placed on record; both he and Mr. Doran gave their experience of similar cases. At the same meeting Dr. Blacker showed a specimen of deciduoma malignum, and Dr. Briggs one of primary carcinoma of the Fallopian tube.

The March meeting was the occasion of a communication by Mr. Harrison Cripps and Dr. Herbert Williamson, which afforded much interest. They described two cases involving the question of the site of impregnation. The first was tubal gestation after complete removal of the ovary of the same side, the second pregnancy after

removal of a portion of both tubes. The possible explanation in the former case was said to be (1) the presence of an accessory ovary on the same side; (2) external migration of the ovum. Published cases in accord with those read were quoted. Mr. Doran considered that in the first case the existence of ovarian tissue on the same side as the Fallopian tube fully explained the subsequent pregnancy, and that authentic cases recorded after double ovariotomy tended to confirm this view. He also observed, in reference to the second case, that ligation seldom closed mucous canals securely; for example, cases had been recorded where both ovaries and tubes had been removed for cystic or inflammatory disease, yet the patients had borne children afterwards. Dr. Herman said that it was unquestionable that the ovum might traverse the peritoneum from one ovary to the opposite side, and evidence existed that the ovum might pass through the uterus and get from one tube into the other.

It is, I think, an established fact that mere ligature of the tube after Cæsarean section, or from other conditions, does not ensure the sterility of the patient.

Dr. Florence N. Boyd described two cases of abdominal hysterectomy for fibroids complicated by pregnancy. In the discussion which followed the question was raised as to the best time for operating in such cases. Mr. Doran advocated hysterectomy in early pregnancy where the fibroid arose from the posterior part of the inferior uterine segment. The opposite view was taken by other speakers. Dr. Routh gave cogent arguments for reasonable delay, and said that he had never seen a case which could not wait for operation until the contained fœtus was viable. Dr. Herbert Spencer emphatically denounced the early operation, and considered that it was too frequently performed in cases of fibroids complicating pregnancy. Tumours which encroached on the pelvis in early months were often drawn up as pregnancy advanced, and even at full time a very large tumour might be successfully removed by the operation of myomectomy.

The same line of argument was taken by Dr. Lewers, who thought it only rarely justifiable in cases of obstruction due to pelvic fibroids to perform abdominal hysterectomy in the early months of pregnancy. In such cases where there was otherwise a fairly normal uterus he should be content with performing a conservative Cæsarean section, leaving the pelvic fibroid or fibroids untouched.

A paper on "Torsion of the Pedicle in Hydrosalpinx, and other Morbid Conditions of the Fallopian Tube," was read by Dr. Hamilton Bell in April. Twelve cases were recorded in addition to forty-one noted by Cathelin. Dr. Bell pointed out that the particular conditions necessary to this accident were much more frequently present in cases of hydrosalpinx than in any other form of tubal disease. Various influences associated with the causation were brought forward by Dr. Bell and the clinical aspects were also dwelt on. Mr. Bland-Sutton expressed his opinion in regard to the diagnosis—that it was practically impossible, and stated also that it was very difficult to frame a plausible theory as to the causation. This opinion seemed to be shared by other speakers, while admitting the value of the observations of Dr. Bell contained in his paper.

On May 4th Mr. Alban Doran read a paper entitled "Hæmatoma and Hæmatocele: a Study of Two Cases of Early Tubal Pregnancy." He pointed out that his cases did not support the view generally taught, that hæmatocele associated with early tubal gestation demanded operation, while a hæmatoma or extra-peritoneal hæmatocele under the same conditions would subside if the patient were kept at rest. What Mr. Doran writes upon this and cognate subjects is always worthy of attention, and, as expected, an interesting discussion followed. The difficulty of diagnosing hæmatoma such as described in the paper and ordinary hæmatocele was referred to by several speakers.

The subject of hydatid disease occupied most of the

time of the June meeting. A paper contributed by Dr. Cullingworth and Mr. H. H. Clutton embodied the account of a number of abdominal operations performed on the same patient extending over a period of eight years. The ultimate result exhibited in a marked degree the success attended by persistently following by surgical measures every fresh development of the disease. In the after-discussion Mr. Bland-Sutton threw considerable light upon the subject of this comparatively rare condition. He observed that in the distribution of echinococcus colonies among the abdominal viscera the parasite in the great majority of instances really selects the subserous tissue. The ovary and testis, not having a loose connective tissue, were usually free from the invasion. He also stated an interesting fact, that brood cysts might be sown in the connective tissue by wounds made at the time for their removal. Dr. Eden at the same meeting related a case of primary hydatid disease of the Fallopian tube, with regard to which he believed that there was only one other similar case on record. In this case the ovary was quite separate and not involved in any adhesions.

The meeting in July was occupied with a paper by Dr. M. S. Pembrey and Mr. Bellingham Smith on "Sacs containing Fœtuses and Lying Free in the Peritoneal Cavity of a Rabbit." The sacs were formed of fœtal membranes thickened by fibrinous exudate; the amniotic fluid had been absorbed and the fœtuses were compressed. The uterus showed a scar as the site of a former rupture at the junction of the two uterine horns. Four of the fœtuses were found in one sac, which showed signs of torsion. From the evidence adduced it was considered that the condition supported the view propounded by Mr. Bland-Sutton that such fœtal sacs were due to extrusion after rupture of the uterus, and not to extra-uterine pregnancy. As far as I can learn there is nothing in human pathology where a similar condition has been found.

On this occasion a number of valuable cases and

specimens were discussed, notably a specimen of fibroids and carcinoma of the body of the uterus, shown by Dr. Lewers. The conjunction of carcinoma and fibroids in the same uterus is an observation of much moment. In the opinion of Dr. Lewers it is advisable always where fibroids have existed to open up the body of the uterus after removal, before closing the abdomen; from his experience malignant growths in the endometrium is not a rare complication. This is a fact now becoming more recognised; Dr. Galabin expressed his opinion, that fibroids predisposed to cancer. In some instances dilatation failed to reveal cancer, where there was continuous menorrhagia after the menopause. In such cases the uterus should always be removed. The operation of panhysterectomy was characterised by Dr. Mary Scharlieb as "the" operation of the future in such cases, an opinion which was shared by the majority of those who took part in the debate. At the same meeting Dr. Boxall narrated a case of spontaneous restitution of an inverted uterus in a young primipara after attempts at reposition had failed. This he regarded as a rare occurrence, which he attributed in this case largely to the use of full douches administered night and morning.

"Certain Details regarding the Operation of Cæsarean Section in Cases of Contracted Pelvis, based on a Series of 30 Cases" was the title of a paper by Dr. Munro Kerr on October 5th. Two deaths occurred in the series, making the mortality 6·6 per cent. One of the patients died on the fifth day from septic peritonitis, the other the day after the operation, from hæmorrhage into the abdomen, caused by several of the stitches becoming loose. Dr. Munro Kerr discussed three methods of treating the uterus after removal of the child: (1) Removal by supravaginal hysterectomy; (2) retaining the uterus, and sterilisation by resection of the tubes; (3) retention of the uterus without sterilisation—the conservative Cæsarean section. After due consideration, he came to the conclusion that the first method was the best. In the

debate which followed Dr. Herman called attention to the simplicity and safety of early operation; he thought that the patient should decide whether she should be sterilised or not, and that this could be done most effectually by removing the uterus. Dr. Routh generally concurred in this opinion, while Dr. Cullingworth and Dr. Herbert Spencer agreed that the question of sterilisation should be left to the medical attendant from the considerations which they enumerated.

At the November meeting Dr. Herbert Spencer read a paper on "Three Cases of Cancer of the Cervix" complicating Labour in Advanced Pregnancy. The patients remained well respectively 11 years, 8½ years, and 8 years after high amputation of the cervix. Delivery in each case was effected by the natural passages, followed in two of the cases by high amputation of the cervix during the puerperium, in the remaining one the same operation five months after delivery. Two children were born alive; one survived. One of these patients had since been delivered by Cæsarean section of a living child, which had survived. In the literature of the subject Dr. Spencer had been able to find only two other similar cases where the patients had remained well for five years. He also noted three cases of cancer of the cervix complicating labour in advanced pregnancy, in which the disease was too extensive for radical treatment. Dr. Spencer elaborated in an able manner the many considerations to be kept in mind in such operations, quoting authorities in addition to his own experience. The interest in this paper gave rise to a useful and prolonged discussion, in which a number of Fellows took part. Adherence to the exact title of the paper would probably have made the debate shorter and more apposite. Mrs. Florence Boyd afforded a commentary upon the question by showing the uterus removed by abdominal hysterectomy from a patient, aged 40, who was the subject of squamous carcinoma of the cervix. She informed the meeting that she and her colleagues at the New Hospital for Women, deviating from the generally

accepted practice, followed the plan of operating by the abdominal method in all cases of cancer of the body of the uterus, and in some of cancer of the cervix. They had now had in all 21 cases without a death. She strongly upheld this method of operation as the safest and the best.

Dr. Walter Tate read a paper on December 7th on "Three Cases of Intestinal Obstruction following Operations for Fibroid Tumours of the Uterus, with Special Reference to the Choice of Operation." After relating the history of the cases, Dr. Tate remarked that he had selected supra-vaginal hysterectomy as the operation up to the last few months, but that the occurrence of three cases of intestinal obstruction in a series of 150 operations called for serious reflection. It appeared to him that dangerous adhesions were more likely to follow supra-vaginal hysterectomy than panhysterectomy. There was no advantage to be gained by leaving the cervix, and the risk of injuring the uterus was to a great extent imaginary where proper care was taken.

Quoting from his own practice, Mr. Doran said that one case of intestinal obstruction had occurred in ninety-eight supra-vaginal hysterectomies. He considered that the flaps of the uterine stump should be closed by a continuous suture, to avoid increase in the number of knots, the most unfavourable feature in supra-vaginal hysterectomy, and also that enemas and purgatives should be given on the second day. Dr. Horrocks criticised Dr. Tate's cases, and was of opinion that panhysterectomy for fibroids was more difficult to perform, was followed by greater shock, and left the pelvic floor in a weaker state than supra-vaginal hysterectomy. Neither did Dr. Galabin consider Dr. Tate's contention proved by the evidence brought forward in his cases. Dr. Galabin described his own method of operating and the form of suture he used, and concluded by stating that he had never had a case of intestinal obstruction after supra-vaginal hysterectomy, panhysterectomy, or vaginal hysterectomy. Dr. Cullingworth mentioned that

he had performed Baer's operation nearly a hundred times, in which there had been four cases of genuine intestinal obstruction, but in no case was it noted that the intestine had become adherent to the line of suture on the uterine stump; he did not subscribe to Dr. Tate's opinion. Dr. Lewers observed that he had met with two cases of intestinal obstruction after abdominal section, and that to his mind panhysterectomy for fibroids presented no advantage over the supra-vaginal operation.

Obituary.

It falls to your President at each annual meeting to refer to the losses we have sustained by death. Occasionally it is his task to write a more extended notice of some who have attained a wider professional fame than is allotted to the majority of those who have recently moved amongst us. We regret the loss of those who have co-operated with us, and we desire to recall their names as having moved in the same professional atmosphere as ourselves. It is not given to all to achieve the highest positions in our ranks. In our army there must be soldiers as well as generals. An old writer, Sir Thomas Browne, beautifully expresses this sentiment: "The greater part must be content to be as though they had not been—to be found in the register of God rather than in the record of man." It is with these thoughts in my mind that I bring before you the following names.

James Paterson, M.D.—James Paterson, of Partick, Glasgow, was born in 1827 and died on November 16, 1903, thus reaching 73 years. The *res angusta domi*, due to his father's ill health, rendered it desirable for him to early maintain himself, and at the age of 13 he entered the laboratory of the Royal Infirmary, Glasgow. Four years later he had full charge of the laboratory, and this included the teaching of practical pharmacy to the students. Thus he was enabled to begin his medical

curriculum, and took his M.D. (Glasgow) degree in 1849, the English qualifications of M.R.C.S., L.R.C.P., and L.S.A. in 1850.

After being at the Barony Fever Hospital for about two years, he settled in practice at Partick, where he became Medical Officer of Health, a post he retained until his death, at the age of 73. At one period of his life he suffered from attacks of bronchitis and asthma, and had to give up his work. He returned to it, though his health limited the amount of work he strove to get through. In the earlier years of his practice he devoted a large amount of attention to midwifery. He had been a Fellow of the Obstetrical Society since 1865. I am indebted to his son, Dr. W. S. Paterson, for the following particulars: "He was naturally a student, and his chief interests were in his profession. In his early days music was one of his hobbies, and he retained a good knowledge of its theory; his other recreation was philology; from his boyhood languages had a fascination for him: French was the only one he spoke conversationally; but of Latin, Greek, Italian, and Spanish he knew the grammar and could read them with comparative ease. Three months before his death he found that his knowledge of Greek was getting rusty, and he promptly began to study it afresh." There is much in his life's history resembling that of many cultured men in our profession, whose love of learning is for knowledge's sake, whose delight lies in adding to the unfathomed stores from which they have drawn solace and change of thought in many weary days and dreary nights.

Robert Milne Murray died on February 14th, 1904. He was born at Fettercain, Kincardineshire, on May 6th, 1855, thus having attained the age of 48 years. In early life he left the school kept by his father, and entered as a student at the University of St. Andrews, where he took the degree of M.A. in 1875. Devoting much attention to the science branches of his curriculum, he became assistant, for a time, to the Professor of Chemistry in that

university. Having acquired marked reputation as a student, he proceeded to the University of Edinburgh, at which place, after a distinguished career, he graduated as M.D., with first class honours, in 1879. Here, choosing obstetrics and gynæcology as the subject to which he desired to devote his energies, he obtained the post of assistant to Dr. Halliday Croom. In 1886 he was elected a Fellow of the Royal College of Physicians of Edinburgh, and commenced to lecture on midwifery and diseases of women in the extra-mural school. His lectures were largely attended; full of enthusiasm, lucid and concise in exposition, as a teacher he attained signal and almost unexampled success.

Dr. Murray was elected a Fellow of the Obstetrical Society of London in 1893. He was also a F.R.S.Edin. and of the Physical Society of Edinburgh. At one time he was President of the Obstetrical Society of Edinburgh, V.-P. of the British Gynæcological Society and the Royal Scottish Society of Arts, as well as interesting himself in several other learned societies. He was one of the Physicians to the Royal Maternity and Simpson Memorial Hospital, Assistant-Gynæcologist to the Royal Infirmary, Examiner in Midwifery at the Royal College of Physicians and to the University of Durham, also for the Indian Medical Service. In the multifarious duties of a strenuous life his contributions to medical literature were many; his intimate knowledge of science enabled him to give valuable service to the branch of the profession in which he was engaged: it was marked in the attention he gave to the construction and use of the forceps. The results of his investigations were given in 1896 in papers on "Axis Traction Forceps, and Adjustable Axis Traction Forceps" and an interesting paper on "Relative Advantages of Forceps and Version" in the 'Transactions' of the Obstetrical Society of Edinburgh, February 11, 1891. Tarnier's adoption of the principle of axis traction to forceps in 1877 denotes an important epoch in the history of this instrument; the model of 1881 had many disadvantages; these were overcome in great measure

by Professor A. R. Simpson, who adopted the principle to the long forceps of his uncle, Sir J. Y. Simpson. Many alterations in the pattern of this instrument had been made, but it remained for Dr. Milne Murray to work out with mathematical accuracy and to construct an instrument in strict accordance with the principles represented, upon which its efficiency depends.

Dr. Milne Murray was a man of versatile acquirements. The applications of his scientific knowledge were many and widespread. He was a high authority on electricity in its numerous details. His mechanical skill enabled him to devise many improvements in apparatus and appliances. Prominent among these is the switchboard almost universally used for medical investigations and treatment. He had an extensive laboratory of electrical appliances, with which he became so familiar as to be sought after as an expert authority on the subject. He was appointed the first electrician to the Royal Infirmary of Edinburgh, and gave much technical help to the installation of electricity in that institution. Had he been imbued with commercial instincts or chosen to take out patents for the many improvements he devised and so freely explained to others, he might doubtless have derived a great pecuniary gain. It was characteristic of him that no sordid or ignoble motives had place in his mind, and that he liberally imparted the outcome of his talents to all who were interested or desirous to learn. His versatility was shown in other directions also. A man of extensive literary attainments, possessing knowledge of music sufficient to play skilfully several musical instruments, with æsthetic tastes and charm of manner, his friendship was valued and sought by a large circle. The generous impulses of his nature, kindness of heart, and large sympathies endowed him with the graces and qualities of a noble life. Favoured with so many natural gifts, adorned by so many resources of art, gentle yet firm, truly loyal as a friend, and trusty as a counsellor, it is not to be wondered that his death at a comparatively early age caused deep regret

to many who were bound to him by the strongest ties of affection.

In November, 1902, he caught a chill, which was followed by pneumonia, the result of which was the development of some pulmonary condition from which he never recovered. After visiting several health resorts with no good effect, he was advised to undergo an operation involving the resections of the parts of several ribs. This was done on February 11th, 1904, but he never completely rallied from the anæsthetic, and died from heart failure a few hours later. He left a widow, who, with his mother and one brother, were left with many devoted friends to mourn his loss.

John Stothert Bartrum lived to the ripe old age of 87 years. Born of a well-known and respected family at Bath, he went to King's College for his medical studies, and subsequently held a resident appointment at Middlesex Hospital. He became a Member of the Royal College of Surgeons in 1838, and a Fellow of the college in 1847. He was one of the oldest Fellows of our Society, having joined in 1861. Mr. Bartrum settled in his native city of Bath, where he soon acquired a large family practice. He was appointed Medical Officer to the Eastern Dispensary and Surgeon to the Mineral Water Hospital—a title which, by the way, did not involve the conduct of any surgical duties. Mr. Bartrum took a foremost part in public affairs, and was twice elected Mayor of the City of Bath. He was also a Justice of the Peace, a staunch Churchman, and an active Conservative in politics. He retired from the profession in 1882, but still continued to devote much time to the benefit of the social and charitable institutions in which he was interested. Perhaps his most noteworthy work, from a professional point of view, was the zeal with which he acted as secretary to the Bath and Bristol branch of the British Medical Association. His business capabilities, his steadiness of purpose and attention to the work before him gave a great impetus to the strength of the local Association. A man of

honoured integrity, just in his appreciation of the duties and obligations of citizenship, he lived to look back upon a career of usefulness, coupled with the esteem and regard of those among whom his life's work was spent.

James Crawford, L.K.Q.C.P., was elected a Fellow of our Society in 1877 when he was in practice at Ightham, Sevenoaks. I have not been able to ascertain any particulars of his life, the notes sent to his former address being returned and marked "deceased."

George Eugene Yarrow, having retired for some years from practice, died in November, 1903, at his residence, Duncan Terrace, Islington. He became a M.R.C.S., L.R.C.P., L.S.A., in 1863; M.D. of Heidelberg in 1867; and D.P.H. in 1889. He was also a Barrister-at-Law, being a Member of the Honourable Society of Grays Inn. Dr. Yarrow in his time held a number of varied appointments. He was President of the Metropolitan Branch of Medical Officers of Health, Deputy Coroner for East London, Surgeon to the "G" Division of Police, etc. He was Surgeon-Accoucheur and Lecturer in Midwifery to the City of London Lying-in Hospital, and Surgeon to the Royal Maternity Charity, a member of the Marylebone Board of Guardians, and at one time Medical Superintendent of the City Road Workhouse. Dr. Yarrow became a Fellow of our Society in 1871, and served on the Council from 1881 to 1883. He contributed a case of "Cæsarean Section" to the 'Lancet' in 1872, and also published in the same journal "Midwifery Statistics" in 1892. From his numerous qualifications and appointments we may infer that he led a very active life, and must have earned the retirement he allowed himself before his decease. His death is said to have been due to blood-poisoning, the particulars of which have not been made known to us.

William Newman, M.D.Lond., F.R.C.S.Eng., died on December 3rd, 1903, in his 71st year. Dr. Newman was a man of exceptional abilities and force of character. He received his professional education at St. Bartholomew's

Hospital, where he pursued a diligent and distinguished career. He then became House-Surgeon at the Shrewsbury Hospital, after which he settled down at Stamford, where he practised for forty years. Of this period he was for thirty years Surgeon, and for ten years Consulting Surgeon to the Stamford and Rutland General Infirmary, He conducted a large and responsible general practice, and by his professional attainments, shrewd insight, and large experience he rose to be one of the most valued consultants over a large area.

Dr. Newman published 'Some Collected Surgical Essays,' works on 'Drainage and Water Supply of Towns,' and 'How to Make Home Healthy,' some contributions also to St. Bartholomew's Hospital 'Reports' and to the 'British Medical Journal.'

Dr. Newman became a Fellow of this Society in 1859, a Member of the Council in 1873, and Vice-President in 1876-7 He wrote in 1886 "A Case of Cæsarean Section, Recovery of Mother, Child not Viable"; this was printed for private circulation; also in our 'Transactions' vol. xxxi, p. 167, "A Case of Inversion of the Uterus of Sixteen Months' Standing; Replacement; Recovery." In this case the reduction was affected by Aveling's repositor, in the application of which he gives some interesting details.

Dr. Newman had a high sense of the value of practical treatment. He was firm yet frank in his methods. He studied the patient as well as the disease; in this lay much of his success.

The combined knowledge of human nature, a thorough knowledge of his profession, and the avoidance of all attempts to conceal his motives, gave his patients unbounded confidence in his art. Few men have attained so great a command or such wise influence over those with whom he had to deal. He was withal a scholar and a gentleman. He was courageous in the expression of his opinions, and ever faced difficulties with a sternness of resolve to overcome them. He was one who may well with truth have said, "I dare do all that may become a man: who

dares do more is none." Thus Dr. Newman became a power in his sphere. He wielded his authority at all times with justice and discretion and guided his affairs with integrity of heart.

William Burslem Protheroe was a native of Cork. He practised at 47, Gloucester Place, and previously at Ladbroke Grove. He was a L.R.C.P.&S.Edin. (1891) and L.F.P.&S.Glasg., also L.M. Rotunda Hospital (1887), where he obtained a special certificate in gynæcology. He probably began his study in medicine late in life, for he died at the age of 48, in August, 1903, of cancer of the rectum. He was elected a Fellow of this Society in 1902, but did not live long to enjoy the privileges thereof. Not much can be gained of his life, but I am informed that he was a member of the Marylebone Borough Council, that as a Conservative he was fond of politics, and that he took much interest in local public affairs. These facts show that he must have recognised his obligations to the civic and social life of the community in which his lot was cast.

And now, ladies and gentlemen, at the end of the second year of the office in which your suffrages have placed me, it is my pleasure to reiterate my warmest thanks for the courtesy, consideration, and help with which my duties have been received. To your valued Secretaries, Dr. Handfield-Jones and Dr. Boxall, I owe much of the facility with which the work has been so steadily pursued. To them, to the Council, and to the Fellows of the Society, my position has been an object-lesson of what true goodness of nature, elevated and cheered by the highest of professional motives, can make a man endure, achieve, and enjoy. I am conscious of my own shortcomings. In this place I have endeavoured only to show proof of the justice of your choice. In ceding the presidential chair to my able successor, Dr. Dakin, I retire with a feeling that will awaken for years to come many pleasant recollections, not the least of which will be that though distance may have lengthened the chain which has bound us together, it has not diminished the strength of those ties which have

united us in similar pursuits in the common bond of our calling.

Let me close my present relations by expressing my final sentiments in the few simple yet inspiring words of Bacon : "But above all, believe it, the sweetest canticle is *Nunc Dimittis* when a man hath attained worthy ends and expectations."

Dr. Champneys moved a vote of thanks to the President for his address. He said that, in the first place, he desired to express the thanks of the Society to Dr. Malins for his interesting address, containing as it did much that was thoughtful and suggestive. The other part of the resolution, dealing with his conduct in the Chair, required a few special words. Dr. Malins was the first provincial President of the Society. Even for a President living in London the proper discharge of his duties was by no means easy, but for a man living halfway to Scotland they became extremely difficult, and no one could so discharge them unless he made considerable sacrifices, prompted by real and unselfish attachment to the Society. Dr. Malins's appointment was confessedly an experiment, but he ventured to say, in the name of the Society, that he had made it a success.

Dr. Cullingworth, in cordially seconding the vote of thanks, said he supposed that past Presidents had been selected for the pleasant duty of moving and seconding the vote of thanks on the ground that, having themselves had to prepare annual addresses, they would appreciate better than anybody else the labour and time and thought that such addresses involved. He congratulated the retiring President on having fashioned such an interesting address out of such unpromising materials. He was glad to hear the opinion expressed by such an authority that the probable effect of the administration of the Midwives Act would be to raise and benefit the medical profession rather than to injure it, an opinion with which he entirely agreed. He would like to express, on his own behalf and

on behalf of all those who had been intimately associated with the late Dr. Milne Murray, his personal thanks for the full, appreciative, and sympathetic memoir of him which had just been read. Dr. Milne Murray was a singularly gifted man for whom he had a great personal regard and whose loss to medical science was irreparable. He was most grateful to Dr. Malins for the care and sympathetic insight with which he had prepared this sketch of his life and work.

The vote of thanks to the President for his address was then passed by acclamation.

MARCH 1st, 1905.

W. R. Dakin, M.D., President, in the Chair.

Present—44 Fellows and 2 Visitors.

Books were presented by the American Gynecological Society and the staffs of Guy's, St. Bartholomew's, and St. Thomas's Hospitals.

J. Reginald Fuller, M.D.Durh., was admitted a Fellow.

Daniel E. Anderson, M.D. (Paris), was declared admitted.

The following candidates were proposed for election: Edith Serjeant, L.R.C.S.&P.Edin. & Glas.; Helen Mary Serjeant, L.R.C.S.&P.Edin. & Glas.

The following gentlemen were elected Fellows of the Society: Thomas Crisp English, F.R.C.S., M.B.Lond.; Arthur W. Fuller, M.D.Edin.; Alexander B. Leakey, M.B., B.Ch.Edin.; Robert Martin McQueen, L.R.C.P.Lond., M.R.C.S.Eng.; William Robert Orr, M.D., R.U.I., M.Ch.; George Rice, M.D.Durh., M.R.C.S., L.R.C.P.; Darwall Smith, M.D.Cantab.; William B. Thomson, M.B., B.Ch.Glas.; Charles George Webster, Capt. I.M.S., L.R.C.P.&S.Ed.

A CASE OF CHYLURIA WITH PREGNANCY.

By J. C. Holdich Leicester, M.D., F.R.C.S., I.M.S.,
RESIDENT SURGEON, EDEN HOSPITAL FOR WOMEN, CALCUTTA.

Mrs. J. R—, Eurasian, aged 18, married eight months, came to the Out-Patient Department of the Eden Hospital, Calcutta, on the morning of August 19th last, complaining of great pain on micturition. On further questioning she stated that her urine was quite white, with small clots of blood, and that she had a swelling in the right thigh, which, at the present time, was not painful.

The further history obtained was as follows : The patient first began to pass milky-white urine on the previous day, viz. August 18th, and was quite positive that before this her urine had been quite clear. The lump in the right thigh was first noticed in March, 1904. It did not trouble her at first, but after a few days any slight exertion, such as walking about, brought on some pain over the swelling. The application of belladonna and glycerine caused the pain and swelling to subside for the time. There was no fever in connection with the appearance of the swelling, or afterwards. Towards the end of July, feeling weak, and noticing that she passed more urine than usual and suffered from considerable thirst, she left Calcutta and went to Burdwan (about 67 miles away), but, deriving no benefit, shortly returned. Noticing that her clothes were becoming looser, she believed that she was getting thinner. On August 18th pain in the back came on, with great difficulty in passing urine. She was born in Calcutta, and had lived there all her life.

As far as can be ascertained there were no cases of elephantiasis or chyluria, either in the house in which she lived or in the neighbourhood. There was nothing of any bearing on the case, either in the past, personal, or family history.

Menstrual history.—Regular every four weeks, lasting six to seven days, rather profuse, but never passes clots. Pain just before the onset of flow. Last period ceased on November 26th, 1903. Has had a white vaginal discharge before, and throughout her pregnancy. No children or abortions.

On examination, she was somewhat anæmic. The uterus was found reaching up to 1½ inches below ensiform. Child was lying with vertex presenting, the back being to the left and in front. Fœtal heart sounds were 142 to the minute. There was a swelling, rather hard, but not very tender, over region of right femoral ring, about the size of a walnut, which felt like an enlarged gland.

Examination of urine.—Urine drawn off with a catheter. Milky white, with a slight pink tint, contains a good deal of white sediment. Sp. gr. 1022. Faintly acid. Albumen ¼. Traces of blood. Chyle present. Phosphates in excess.

Microscopic examination of urine.—Phosphates and oxalates present. Blood-corpuscles. Bladder epithelium and several filaria embryos. The urine partially clots shortly after passing, but soon breaks down again and remains fluid.

On the 20th the swelling on the right femoral region was very much less, and could hardly be detected.

Labour pains began at 1 a.m. on August 25th. The os was fully dilated and membranes ruptured at 9.5 a.m. on the same date. At 9.40 a.m. patient was delivered of a live female child measuring 17 inches and weighing 5 lbs. 7 oz. Placenta, expelled at 10.10 a.m., weighed just under 1 lb. There was a slight rupture of the perineum, which was sutured with silkworm gut. Labour was otherwise normal. Temperature after delivery 99° F. Puerperium was normal except for a rise of temperature to 101·8° F. at 10 p.m. on August 31st. With this exception the temperature never rose above 99° F. No cause could be ascertained to account for this rise.

On August 31st patient passed a little clear urine early

in the morning, for the first time since admission. Sp. gr. 1020. Reaction faintly acid. Albumen $\frac{1}{5}$. No blood or chyle. On September 1st the urine was milky white and tests the same as before. It remained in practically the same state up to September 26th, the date of discharge, with the exception that that passed the first thing in the morning was frequently clear or almost so. The amount of urine passed in the twenty-four hours varied very much from day to day, the average being 23 oz., the maximum being 42 oz., and the mininum 11 oz.

The blood was examined on three different occasions, between the hours of 9.30 and 10.30 p.m., and on each occasion was found swarming with filaria embryos.

The patient's weight on—

	Stones.	Lbs.	ozs.
September 11th	6	3	13
September 18th	6	4	8
September 26th	6	6	8

Treatment adopted.—When first admitted patient was kept in bed with the foot of the bed raised to elevate the pelvis. No medicine was given. The diet was milk and barley-water only. On August 23rd the milk was reduced, and she was given bread, fish, chicken, and chicken broth. No medicinal treatment. On August 26th she was given milk diet—that is, milk, tea, bread, and beef-tea—and the usual hospital *post-partum* mixture of ergot, digitalis, and quinine. On September 6th she was given eggs and chicken in addition to above and gallic acid, grs. x three times a day. This was continued till the 12th with no effect. On September 15th in addition to above she was given rice and ferri salicylate mixture. (This mixture was, I believe, first brought to the notice of the profession by the late Major Evans, I.M.S., for the treatment of this disease, and has been found to very favourably affect certain cases.) This was continued to the 21st but without any effect. On September 21st petroleum emulsion (Angier's), two drachms, three times a day, was prescribed (at the suggestion of Major F. J. Drury, I.M.S.,

who had used it with apparent success in one or two instances), and continued right up to her discharge, on the 26th, on which date the uterus was well involuted and perineum soundly united.

The case steadily resisted all treatment, whether of diet, drugs, or posture, and the condition of the urine remained practically the same throughout. The patient's general condition, however, underwent considerable improvement.

It may be of interest to add that the bladder was washed out with a solution of supra-renal extract twice a day, after a preliminary irrigation with boric lotion, from September 12th to the 15th, but with no appreciable effect on the amount of blood in the urine.

I think there is little doubt that in this case the pregnancy was the exciting cause of the chyluria, due to the disturbance of the pelvic lymphatics which had been previously affected by filarial obstruction of the thoracic duct.

My thanks are due to Lieut.-Colonel F. S. Peck, I.M.S., for permission to record the case, and to the clinical clerk (Miss Flora Singh) for her careful and accurate notes.

A CASE OF PREGNANCY IN A RUDIMENTARY UTERINE CORNU.

Shown by Dr. Arthur H. N. Lewers.

A. S—, aged 24, was admitted into the London Hospital as an emergency case from the receiving-room at 7 a.m. on May 5th, 1904. She was sent up to the hospital by Dr. Corner, of Mile End Road. She had been married thirteen months. Six months after marriage she had had a miscarriage at about the sixth month of pregnancy.

She had had one menstrual period 13 weeks after the miscarriage. Since then she had not menstruated up to the time of her admission to the hospital.

The day before admission, up to which time she appeared to have been in her ordinary health, she was suddenly taken ill with severe pain in the abdomen.

State on admission.—The patient was much blanched and collapsed. Her temperature was 96·5°, and her pulse 120, and barely perceptible. She was given a hypodermic injection of strychnine gr. $\frac{1}{30}$. The bowels were got to act by a simple enema, and shortly afterwards two pints of normal saline solution were given *per rectum* and retained.

I saw the patient at 2 p.m. She had then rallied a little, her pulse was 100, and the temperature 97°. She was complaining of thirst, and had vomited once since her admission.

The lower abdomen was extremely tender, and nothing definite could be felt there.

On vaginal examination some blood was seen at the vaginal orifice, the uterus was movable, and apparently slightly enlarged; the os was not patulous. Some vague swelling was felt to the left of the uterus. There was no difficulty in coming to the conclusion that the case was one of ectopic pregnancy, with severe internal hæmorrhage: and accordingly preparations were made for immediate operation.

Operation.—When the patient was anæsthetised her condition was so bad that I thought it desirable to have intra-venous injection of salt solution done while I was operating, and accordingly 5 pints of normal saline solution containing ℥ij of brandy were injected into the left median basilic vein. In the course of the operation the patient was also given two hypodermic injections of strychnine (gr. $\frac{1}{30}$).

On opening the abdomen a large quantity of blood and large clots were found in the peritoneal cavity. On exploring the region to the left side, a dark slate-coloured

sac was seen, which was the unruptured ovum; this was ruptured by handling, and a fœtus, which was quite fresh and of three months' development, escaped with the liquor amnii. The sac to which the cord was traced was on the left side, and lay much higher up than in cases of ruptured tubal pregnancy; in fact, the gestation sac lay partly on the left iliac fossa. It was pulled up, and the pedicle was transfixed and tied. The sac was then removed. The pedicle was evidently much thicker than it would have been had it been composed of the left broad ligament. In fact, the tissue in the stump looked like uterine tissue, and the first ligatures seemed scarcely tight enough to give security. The pedicle was therefore transfixed a second time lower down, and again tied in two halves. The peritoneum was washed out with sterilised salt solution, and the rest of the operation completed in the usual way.

The patient made a good recovery, and left the hospital on June 9th.

A decidual cast was passed *per vaginam* eight days after the operation.

Note on the specimen.—The specimen consists of a muscular sac—the rudimentary left uterine cornu—with the left Fallopian tube and ovary attached to it. The placenta is still *in situ*, and the fœtus is of about three months' development, or perhaps rather more.

About three quarters of an inch of the middle portion of the Fallopian tube is missing, this being due, no doubt, to a small loop of the tube having been caught and included in ligaturing the pedicle. The tube is otherwise normal. The ovary does not contain the corpus luteum, so that the case must have been an example of the external migration of the ovum from the opposite ovary.

The part of the sac which lay highest in the abdomen, the part that had ruptured, is lowest in the specimen as mounted. The wall of the sac is about half an inch in thickness.

A CASE OF EXTRA-UTERINE PREGNANCY; DEATH OF FŒTUS AT THE END OF THE EIGHTH MONTH, AND OPERATION A MONTH LATER.

Shown by Dr. Arthur E. Giles.

The history of this case was briefly as follows: The patient, aged 33, was married for the second time four years ago, and after a year and a half she had a miscarriage. The second pregnancy dated from the menstrual period that finished on May 20th, 1904. At the end of July she had a severe attack of abdominal pain, not definitely localised; this lasted for several hours, and was accompanied by faintness and followed by a scanty discharge of blood, which continued for a week. Interpreted in the light of later developments, this attack would appear to correspond with a rupture of a gravid tube, the pregnancy nevertheless continuing. From this time the patient suffered from morning sickness. On the evening of January 16th she had a little abdominal pain, followed by a scanty dark bloody discharge, and thought labour was impending, so she sent for her medical adviser, Dr. Tresilian, who made an examination. He found the pelvis occupied by a firm mass situated behind the vagina; the cervix was high up behind the pubes, almost out of reach; it was small and did not feel like the normal cervix of the pregnant uterus. Above Poupart's ligament on the right side was a hard rounded mass. Dr. Tresilian diagnosed the case as one of extra-uterine pregnancy. I saw the patient the following day and confirmed the diagnosis. The mass felt above Poupart's ligament appeared to be continuous with the cervix, and we concluded that it was the non-gravid uterus. Percussion of the abdomen showed that there was resonance nearly down to the pubes. I do not remember to have seen this mentioned as a sign of extra-uterine pregnancy, but it seems

evident that when present it is a sign of considerable diagnostic value, because the normal pregnant uterus at the end of the eighth month (the period arrived at in this case) will always give an area of dulness on percussion over the whole of the front of the abdomen. The fœtus can often be palpated with unusual distinctness through the abdominal wall in cases of late extra-uterine pregnancy, but in this case the fœtal parts were even less distinct than in an ordinary uterine pregnancy. This fact is probably correlated with the mode of development of the pregnancy, which was apparently mesometric. We discussed the question of operative interference and decided to wait until some weeks after the death of the fœtus on the ground that the cessation of the placental circulation would materially diminish the maternal risk, and that the "expectation of life" of an extra-uterine fœtus was not usually good enough to warrant an attempt to save it at the cost of greater risk to the mother. These views were explained to the patient and her husband, and they elected to wait in accordance with our recommendation.

Three weeks later I saw the patient again; the abdominal swelling was distinctly less, and no fœtal movements had then been felt for about ten days. On February 19th the operation was undertaken, with the assistance of Mr. H. W. Carson and Dr. Tresilian. The uterus, about the normal size, was lying in the right iliac fossa. Behind it and to the left lay a large mass filling up the pelvis, with the left Fallopian tube coursing over it in a direction backwards and to the left; the fimbriated end of the tube was lost on the surface of the mass. After separating several bowel adhesions an incision was made behind and parallel with the Fallopian tube, and a partially macerated male fœtus was removed; the liquor amnii was scanty, dark, and turbid. The sac was freed from its adhesions to the back and floor of the pelvis, this portion of the sac corresponding with the placenta; the left ovarian vessels were clamped at the brim of the pelvis, a forceps was placed on the origin of the tube and

round ligament from the uterus, and the sac and placenta were then removed with little difficulty, two forceps being placed on the base of the broad ligament. The forceps were replaced by a chain of four ligatures. There was slight oozing from the adhesions on the floor of the pelvis controlled by hot swabs. A gauze drain was passed down behind the uterus, and the abdominal wall closed in three layers. The drain was removed at the end of forty-eight hours, and the patient made an uninterrupted convalescence. The detailed description of the relation of the sac is reserved until it has been further dissected.

Dr. Herman said that according to Parry, who wrote before the time when ectopic pregnancy was commonly cut short by early operation, the average time at which suppuration began was six months after the death of the child. Why, then, was Dr. Giles afraid of waiting longer than a fortnight? He asked, In what proportion of cases did rupture of the sac take place in the later months of pregnancy? According to Parry it was a very rare event.

Dr. Boxall criticised the title of the specimen and suggested some modification as advisable, and in response to Dr. Herman stated that within the last fortnight he had operated on a case in which the gestation sac had ruptured in two places during the latter half of pregnancy.

Dr. Herbert Spencer said that cases of ectopic gestation in the second half of pregnancy in which the child was alive were very rare and very dangerous. Personally, he had only met with three cases. With regard to their treatment it was certainly very tempting to wait until the child died and to operate after the vessels had thrombosed, owing to the smaller risk of operating in these circumstances. But he himself would not wait, having known a sac to rupture at $7\frac{1}{2}$ months while the patient was resting in bed in the hospital. The case was operated on shortly after the accident, and in accordance with the teaching at the time the placenta was left behind; the case terminated fatally. He considered that leaving the placenta behind was more dangerous from sepsis than the removal of it was from hæmorrhage. He had removed the placenta completely in the two other cases, which were advanced to beyond the sixth month; one died unexpectedly some hours after the operation from syncope, from which she had frequently suffered for some years; it was not due to hæmorrhage. The other made a simple recovery. His present opinion was that with a living child operation should be undertaken without delay and that the placenta should in all

cases be removed. In reply to Dr. Herman he said that two similar cases mentioned by Dr. Boxall and Dr. Lewers showed that rupture of the sac in the second half of pregnancy was not so are as Dr. Herman supposed.

Dr. Handfield-Jones congratulated Dr. Giles on the very interesting specimen which he had laid before the Society. Cases of full-term ectopic gestation were rare, and therefore it was of interest that all these should be put on record. He had twice operated at full term for extra-uterine gestation, and in each case the history had been somewhat the same; thus signs of internal hæmorrhage had appeared about the end of the third month, and after that the gestation had continued uninterrupted. In each instance the dangers of delay and operation had been placed before the mother, and in each instance the mother had decided that she would run any risk if only a living child could be born. Dr. Handfield-Jones could not agree that children born by operation at full term were especially puny and undeveloped, for in both of his cases the children had been well developed, had weighed between six and seven pounds, and had been alive and well some months after the operation. The question of the anatomical arrangement of the placenta was always one of great interest. In the second of his cases he had been struck by the peculiar disposition of the placenta. On opening the abdomen it was seen that this structure was lying anteriorly, attached at its margins to the edges of the large bowel. A large portion of the organ was smooth and glistening on its surface, and unattached to any neighbouring tissue. It was somewhat difficult under these circumstances to understand how the placental circulation was provided for. There could be no doubt of the danger of operation at term, for it had been already shown that the mortality was something like 70 per cent., and both his cases had succumbed, one on the nineteenth day after operation, from septic infection, and the other thirty hours after the operation, from shock.

Dr. Griffith stated that in his opinion the safety of the mother must take precedence over that of an extra-uterine fœtus, the risk of operation either during the life of the fœtus or after its death being very difficult to determine beforehand, and depending chiefly on the possibility of complete removal of the sac and placenta at the operation. It must be remembered also that a fœtus developing in the broad ligament, if tightly bound down, was more likely to be deformed and injured. He agreed with Dr. Herman that a longer interval than two weeks might safely elapse after the death of the fœtus before operation, suppuration usually taking place between six and eighteen months, but not always then, and if the case is kept under observation there is ample time to deal with this complication.

Dr. Tate remarked, in reference to Dr. Herman's statement

that cases of extra-uterine gestation at term could be usually safely left for six to twelve months after the death of the fœtus before operation need be undertaken, that in a case of his own which was admitted some years ago to the Samaritan Free Hospital under the care of Dr. Alban Doran, decomposition of the fœtus and amniotic fluid had taken place within six weeks of the death of the fœtus. He quite agreed with Dr. Griffith that successful results in these cases to a great extent depended on whether the fœtus and placenta were enclosed in a sac which could be removed or not. In the former case the complete removal of fœtus and placenta could be carried out without any great difficulty, in the latter case the prognosis was much more grave. In a case of his own at St. Thomas's Hospital in which the case had gone on to full term, and the operation was performed a fortnight after the fœtal movements had ceased to be felt, the fœtus was entirely free in the peritoneal cavity, and Dr. Tate had no great difficulty in completely removing the placenta contained in the broad ligament sac.

Dr. Arthur Giles's Specimen of Extra-Uterine Gestation.

We, the undersigned, have examined this specimen, and have noted the following facts:

(1) The Fallopian tube measures 5½ inches. It is elongated and undilated. From the cut uterine end the tube runs along the top of the mesosalpinx for 4½ inches, and then fuses with the wall of the gestation sac; in this situation it runs for 1½ inches, and finally terminates in little nodules which resemble altered abdominal fimbriæ. On slitting up this outer inch and a half of the tube, its lining presents the longitudinal rugæ characteristic of the ampullary portion. There is no naked-eye indication of rupture at any spot in the stretched out tube.

(2) The meso-salpinx which is attached to the inner 4½ inches of the tube is normal in every way, its two layers lying in close apposition.

(3) There is some solid tissue, which on section shows small cysts, in a site corresponding to the normal position of the ovary—*i. e.* below and on the posterior aspect of the meso-salpinx. This tissue is situated internal to (on the uterine side of) the gestation sac.

(4) There is a band of transverse muscle-fibres, about one inch square, adherent to the postero-inferior aspect of the gestation sac. This is, no doubt, a piece of adherent bowel wall.

Conclusion.—From the fact that the gestation sac is external to the ovary, meso-salpinx, and the greater part (4½ inches) of the tube, we are of opinion that it could not have been developed in between the layers of the broad ligament. We would suggest that the sac is either the result of a tube-ovarian gestation or of a tubal abortion, the extrusion of the products of gestation being gradual, and not, therefore, involving the death of the fœtus.

(*Signed*) Arthur E. Giles,
J. H. Targett,
Cuthbert Lockyer.

"GRAPE-LIKE" SARCOMA OF THE CERVIX UTERI.

Shown by Dr. Herbert Williamson.

"Grape-like" sarcoma is a rare form of malignant disease of the cervix uteri; the cases recorded number sixteen. The specimen shown to-night was removed by Dr. Champneys from a woman, aged 39. She had been married for nineteen years, and was the mother of six children, the youngest of whom was born six years ago.

Menstruation commenced at the age of 16 and was regular until January, 1901. From 1901 until the early part of 1904 the patient was never quite regular, the interval between the periods was seldom more than twenty-one days, and the amount lost was greater than formerly. In the early part of 1904 the bleeding became more profuse, and a brown discharge was present in the intervals between the periods. The patient consulted her doctor, who told her that she had "a warty growth of the neck

of the womb." In July, 1904, several "polypi" were removed from the cervix. For a time the symptoms were ameliorated, but in September the hæmorrhage returned and was accompanied by a very offensive vaginal discharge; she again consulted her doctor, who sent her to St. Bartholomew's Hospital.

Shortly after admission she was examined under an anæsthetic, when Dr. Champneys made the following note: "The hand inserted into the vagina feels a large smooth mass round which the fingers can be passed except in front and on the right, where the growth is attached over an area the size of a five-shilling piece. When the tumour is pulled down it is found to be attached to the anterior lip of the cervix."

The anterior lip of the cervix, with the attached growth, was then removed with the écraseur. The tissues around were so much infiltrated and the uterus so fixed, that it was not thought advisable to perform a more radical operation.

The specimen consists of a firm central portion composed of dense white tissue, to which are attached a number of branching processes with translucent cyst-like dilatations. The tumour formed a large mass occupying and greatly distending the vagina; it was attached by a pedicle to the enlarged anterior lip of the cervix.

The central portion is of irregular shape, white, fibrous, and firm to the touch. The peripheral portion consists of branching processes, which here and there throughout their length are dilated into translucent grape-like bodies; many of these in their recent state were the size of a small cherry. Some are attached by separate stalks to the main stems, an arrangement similar to that seen in a bunch of grapes, but the stalks of some of the smaller cysts spring directly from the surface of the larger ones. In the most dependent part extensive extravasations of blood into the tissues have occurred.

Sections have been prepared from (1) the solid central portion of the tumour, and (2) one of the grape-like cysts:

Section 1 is composed of round and spindle cells separated from one another by intercellular stroma; the nuclei are large, some rounded and vesicular, some oval; all show very distinct chromogen figures. The intercellular substance is homogeneous and stains faintly with eosin. There are no well-formed blood-vessels. The section exhibits all the characters of a mixed-celled sarcoma.

Section 2 (through one of the grape-like bodies).—The surface is covered by a capsule; under the high power this is seen to consist of several layers of flattened and altered squamous epithelium; the deeper layers alone preserve their cellular character. The rest of the section is composed of a porous homogeneous material staining faintly with eosin, and scattered through this are cells. These cells possess a central, deeply staining nucleus, surrounded by a varying amount of cell-substance; they are of various forms, some rounded, others greatly elongated, but none possess the branching stellate form of myxoma cells. Close beneath the surface epithelium are a number of blood-spaces lined by a single layer of flattened endothelium.

An excellent account of these interesting growths has been written by Mr. Curtis and appears in Vol. XLV of the Society's 'Transactions.' To this account there is very little to add, but this specimen is peculiar in one or two respects—

First as to the age of the patient; the great majority of cases have occurred in patients either under 20 years of age or past the menopause; only three cases have been recorded between the ages of 20 and 50. The age of this patient was 39.

Secondly with regard to the epithelium covering the cyst-like bodies; in almost all the recorded cases this has consisted of a single layer of columnar cells. In this specimen it consists of several layers of squamous cells.

Thirdly with regard to the nature of the fluid in the cysts. Because their specimen failed to give the characteristic mucin reaction with acetic acid, Weigert and Spiegelberg

concluded that œdema and not myxomatous degeneration led to the accumulation of fluid. This observation I have confirmed by repeating their experiment with fluid obtained from this specimen.

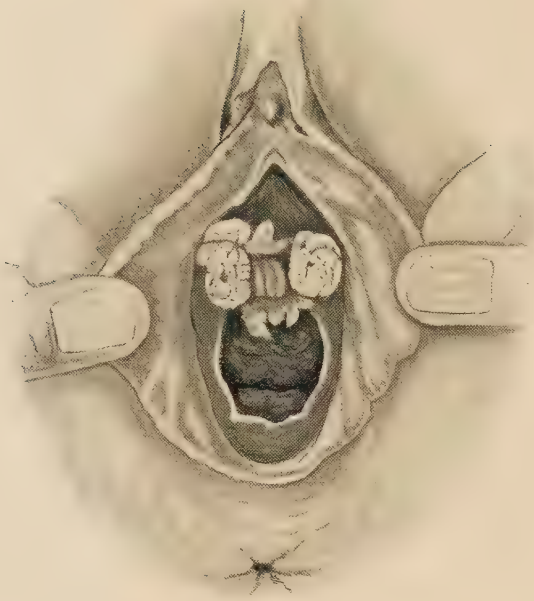
Dr. Handfield-Jones brought forward the history of a case in which sarcoma of the same type had been found springing from the whole lining membrane of the body of the womb. He asked Dr. Williamson for information regarding the length of time during which the disease had existed in his case. In his own experience the disease had shown very little evidence of malignancy, and the patient's life had been prolonged for several years after the disease was first recognised.

A MULTILOBULAR PAPILLOMA OF THE URETHRA.

(With Plate VI.)

Shown by Dr. Cuthbert Lockyer.

The patient, a married woman, was aged 23. She had had two children, the youngest being 4 years of age. Both children are healthy. There had been no miscarriage. Menstruation began at 13 years of age; it occurs every twenty-five days, lasting from five to eight days. The loss has been profuse. The patient was treated by Dr. Eden for a vaginal discharge and painful micturition in July, 1903, and he then found a small urethral caruncle present. She was lost sight of for $2\frac{1}{2}$ years, but attended Dr. Eden's clinic again in January of this year, complaining of pain and soreness of the vulva, which had been noticed for the past two months. There was some dysuria, but no discharge. Dr. Eden found "soft red papillomata growing from the edge of the meatus," and sent the patient into hospital under Dr. Routh. On examination on February 13th, 1905, the parts when separated appeared as seen in the drawing, which shows the exact size of the growth as measured by calipers. The tumour measures $\frac{7}{8}$ in. × $\frac{5}{8}$ in.



Illustrating Dr. Lockyer's case of papilloma of the urethra.

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DESCRIPTION OF PLATE VI,

Illustrating Dr. Cuthbert Lockyer's specimen of Papilloma of Urethra.

The growth is shown with its two lateral lobes drawn widely apart. The two wrinkled surfaces seen in the drawing as presenting anteriorly lay in close apposition in the mid-line before the parts were pulled asunder.

× 1 in. It consists principally of two lateral lobes, separated by a wide central depression. From the depressed centre proceed narrow tongue-like processes both above and below; these with the two lateral lobes give the entire growth a rosette appearance, especially when held open as seen in the sketch. The surfaces of the lateral lobes are crenated and puckered. The surfaces of the central part and its many processes are all smooth. This tumour was attached to the floor of the urethra, near its orifice, by a narrow rounded pedicle. Its removal was easily effected by making the pedicle taut and cutting it across with scissors flush with the floor of the urethra. After this was done the point of attachment was burnt by the electro-cautery and the lower vaginal segment was then packed with iodoform gauze. The microscopical sections show epithelial processes surrounded by young granulation tissue. These histological features would correspond in structure to a venereal wart, a condyloma, or a vascular caruncle. The fact that the growth was so markedly pedunculated differentiates it sharply from a condyloma; the latter structures have usually a wide base from whence they gradually become acuminate. (Dr. Lockyer showed two condylomata to emphasise this difference.) The differential diagnosis between vascular caruncle and a venereal wart in this instance was not so easily settled, but the external appearance favoured the view that the tumour should be put into the latter category. Its size as a urethral growth alone makes it remarkable. Dr. Lockyer was indebted to Dr. Amand Routh for his kind permission to sketch and exhibit this specimen.

INAUGURAL ADDRESS.

Ladies and Gentlemen,—Let me thank you for electing me to this most honourable post of President of your Society. I have had the privilege, during the twenty years of my Fellowship, of seeing ten Presidents accomplish their term of office, and I am well aware, having now come of age as a Fellow of the Society, of the responsibility as well as the dignity which the occupier of this Chair must sustain. I realise, too, most fully the compliment you have paid me. I suppose the sentiments experienced by my several illustrious predecessors at the moment of finding themselves securely seated here must have been very varied—depending a good deal on the differing degrees of self-esteem possessed by each individual; but I am quite sure that any state of mind unmixed with apprehension must have been extremely rare. For my part I assure you that I enter upon my duties with the greatest diffidence, but also with the determination to carry on the honoured traditions associated with those duties to the best of my poor ability.

Our late President, in his parting address, alluded to the fact that we, as a Society, had come to the end of our work as an examining body for midwives. The conception of the scheme of examinations and its carrying out to completion is a matter in which our Society may justifiably take the greatest pride. It is not too much to say that, regarding it from a national point of view, the work that this Society has done is a more useful one than has ever before been accomplished by any medical scientific society. I imagine there can be no two opinions as to the use these examinations have been to the whole country. They have elevated the name of "midwife" to

something which had never been contemplated, in the British Isles at all events, as likely to develop out of its former significance, or rather, insignificance. Who would now, when the word "midwife" was mentioned, picture to himself the possessor of it as being in any way like the dirty, snuffy old person with whom our fathers were satisfied? On the contrary, he would at once see before him a (usually) younger creature, the pink of cleanliness and purity of linen, eager to carry out all the principles in which she has been trained—those of implicit obedience to the doctor's orders consistent with the maintenance of strict asepsis, yet able at the same time to manage with success some of the emergencies of labour in the doctor's absence.

In achieving this, ladies and gentlemen, you have educated more than your midwives. There is the English public. For unless you had shown, in the persons of those women who were considered worthy to receive your certificate, what a midwife might be made, the public could not have been stirred to the pitch of discontent with the old type that rendered it necessary to legislate in the matter. It has been stirred, and by the devoted energy of certain Fellows of your Society, whose names are too well known to all of you for me to need to mention them. And the result of their unselfish efforts has been the addition to the Statute-book of an Act of which the present Government may be more proud than of any that they have carried through the Houses of Parliament. For the passing of the Midwives Act, whatever may be said in its disparagement by some who are not uninfluenced in their opinions by personal considerations, must infallibly lead to the diminution of septic death and septic illness in childbirth, and of ill health in the after-lives of mothers and children.

The fact that our Society has intervened in matters of public health with such undoubted success induces me to ask you to allow me to pursue the same subject a little further. We know how the matter of death and illness

in childbirth stands: it was impressed upon us most forcibly in an inaugural address by one of my most distinguished predecessors, Dr. Cullingworth. He showed, as we shall all remember, how the septic death-rate throughout the kingdom was not falling, but rising. He made some observations as to the cause of this retrogression; and, while allowing that such a disgraceful state of affairs might be to some extent due to the ignorance of midwives, he was of opinion that we ourselves, the medical practitioners of the country, were responsible for a good deal of it. To bring the statistics as nearly up to date as possible I add the annual returns of the Registrar-General for the years since 1895, the last year with which Dr. Cullingworth dealt.

They are as follows: Average of 5 years—1896 to 1900.

Total deaths per 1000 births	4·6	—septic	2·0	accidents	2·6
In 1902	„	„	„	4·47	„	2·1	„	2·4
„ 1903	„	„	„	4·06	„	1·75	„	2·3

This shows a distinct improvement during 1903, and is a very healthy sign, if we could be sure that the improvement would be maintained. It may be due to the diffusion of educated midwives. The numbers are, however, no better than those of 1876 to 1880 as regards deaths from sepsis, and worse as regards total deaths. To state the numbers for 1903 in actual figures, and not in percentages, the births in England and Wales were 948,271; the deaths—septic 1668, and from accidents 2189. If all the labours had been aseptic, the lives of 1668 women would not have been sacrificed.

Before we accept the statement that septicæmia in childbed is not yet diminishing, we may briefly examine some more evidence on this point. As regards the registration of deaths in puerperal cases, and its value now as compared with its value when registration of this kind was started, and for some time after, it appears from the Registrar-General's returns from 1851 to 1900 as quoted by Dr. W. Williams in his Milroy Lectures of 1904

that, taking the mortality in two groups, as above —namely, those of septic diseases, and those of the accidents of childbirth, the former group has, on the whole, increased, and the latter has pretty steadily diminished. Dr. Williams gives this table:

Death-rate per 1,000 *Births.*

England and Wales.	Total deaths.	Septic deaths.	Accidents.
Average of five years:			
1851—1855	4·9	1·5	3·4
1856—1860	4·6	1·5	3·0
1861—1865	4·8	1·6	3·2
1866—1870	4·6	1·5	3·1
1871—1875	5·4	2·4	3·0
1876—1880	3·9	1·7	2·2
1881—1885	4·9	2·8	2·1
1886—1890	4·5	2·4	2·1
1891—1895	5·4	2·5	2·9
1896—1900	4·6	2·0	2·6
Adding the last three years:			
1 year, 1901	4·7	2·2	2·4
„ 1902	4·47	2·1	2·3
„ 1903	4·06	1·75	2·3

Dr. Williams remarks: "... during the last twenty years, when a more accurate registration has been adopted, upwards of 40 per cent. of the total childbed mortality has been caused by septic diseases. It will further be seen that this undiminished mortality has been sustained for a period of twenty years, and that the sources of fallacy are not confined to one or to a few years. It will be noticed also that this period (1881 to 1900) of undiminished mortality in childbed coincides with a period in which enormous strides have been made in all matters pertaining to sanitation generally and with a period of improved certification of the causes of death in connection with childbirth."

Dr. Williams is of opinion, further, that the absence of diminution in mortality may be partly accounted for by improved registration. I find it difficult to imagine that this plays a very important part in the later years cited, for the table shows that in 1901 the mortality was increasing from septic disease, though decreasing from accidents of childbirth, and that in 1902 and 1903 the mean total cases of death are not at variance with those of previous years by as much as ·5 per 1000. Thus, I think, we must not attach too much importance to incompleteness of registration, since accuracy in this respect cannot be imagined to be in any great degree more conspicuous in the last three years than in the five years immediately preceding them. But so much has been said on this point of a quite convincing nature that I need labour the subject no further. We must, unfortunately, resign ourselves to accepting the fact that things have not appreciably improved for the last fifteen or twenty years. If the medical men of this country are responsible for any part of this excessive mortality—and there is, unfortunately, no reason to doubt it—it is obviously the duty of the whole profession, and perhaps of our Society more particularly, to spare no pains to remove such a reproach.

We may, however, just consider for a moment what the share of medical men in this failure to improve really is, since the part played by midwives in the matter has been mentioned. Now, assuming for the sake of argument that the former undoubtedly large share contributed to the puerperal mortality by dirty and unskilled midwives remains what it was, say ten years ago even, we still shall have to explain why the cases under the care of medical men have not, by a marked degree of improvement, diminished the total number of deaths. But we know that the quality of midwives has very appreciably bettered in the last ten years, and we can only imagine that the women attended by them now do better than those attended by former midwives. If we are correct in our ideas on this point, then the failure to improve must lie

at the door of the medical man, unless, of course, it could be shown that the women employ a midwife alone in a very much larger proportion than formerly, and a doctor in a very much smaller. But the contrary is believed to be the case.

I propose this evening to arrive, as nearly as I may, at some way of accounting for this blot on our escutcheon, and if I feel that my explanation is the right one, to go on to consider the best way to wipe it out.

We none of us have any doubt that, if the necessary trouble is taken, septicæmia can be abolished in midwifery practice. But we know that septicæmia is still rife, and is accountable for many deaths and much disease. It is also a fact beyond gainsaying that medical men, who are responsible for a very large proportion of these unfortunate events, are anxious to do the best for their patients. Then why do they not prevent the occurrence of puerperal sepsis in their maternity work? In other words, why do they not put into practice the principles of antiseptic midwifery which have been demonstrated in our lying-in hospitals to be completely adequate?

As regards lying-in hospitals, which are always quoted as showing our power to abolish septicæmia, it may be argued that they are all very well, but that the filthy surroundings of the majority of the poor in towns, and in the country too, make it impossible to carry out ideal methods among them.

This argument is at once met by pointing to the results obtained in the outdoor maternity departments of the same hospitals and of other well-conducted maternity charities. In these the statistics are little, if at all, inferior to those obtained in the wards.

As a matter of fact there are two reasons for this failure throughout the country, and it is of no use trying to shut our eyes to them. One is that there are some medical men who do not know how to practise aseptic midwifery, and the other that asepsis is not by a large number of medical men considered a matter to be taken

seriously in midwifery practice, although they well know that in surgery it is a most vital element.

There are among the professors of medical science in this and in every other country a certain number of men who were educated in the days before any suspicion of the nature of sepsis had arisen. All the more honour is to be accorded to those of this period who have taken the pains to become acquainted with the present standing of our knowledge of septic processes and the best way of guarding against them. They practise surgery with every precaution, and many of them have acquired the "aseptic instinct," a most difficult learning. But all, even of this select class, do not practise an equal degree of purity in midwifery work, although they think they do. They have come to look on this branch of medicine as such a familiar and well-understood affair that there seems to be no need for the introduction of any new system or any modification of their well-tried modes of procedure. They have delivered hundreds of women with success, and are apt to ascribe this success to the routine they have come, in course of time, to adopt. It must not be imagined for a moment that I am imputing any blame to them in following this course; it is the one naturally dictated by their own individual experience, and it would be the height of impertinence in me to try to cast the least slur on the older members of our profession. I am proud to say I know very many of them who are as much alive to the importance of, and as skilful in the performance of, every detail of antiseptic midwifery as the most ideal obstetrician among us. I merely venture to point out the practical difficulties that beset them.

But as regards the younger men—those for whose views and practice the teachers of the present day are responsible—it is a different matter, and it is one a full discussion of which seems to me to be imperative. They are inculcated from the first moment at which they begin to handle surgical cases and have to deal with the management of wounds of all kinds with horror at the

idea of contamination of any possibly absorbing surface with septic matter. They know also all about the condition of the maternal passages during and after labour. And yet cases of septicæmia occur in their midwifery practice. This is really our weak point, and the point on which we owe to ourselves and to the public our most earnest consideration.

The occurrence of puerperal fever in the practice of a conscientious man is a horrible shock to him. It causes him acute mental discomfort, and probably sleepless nights. This anxiety as to the result of every case he attends afterwards is simply misery, and must in the end take years off his life.

Then if one of those responsible for his teaching is brought to confer with him in such a case it must be with some feeling of self-reproach that the teacher hears the account of the antiseptic precautions that have been taken, quite complete as they would appear from the history given him. But there has been of necessity some omission of detail, not due to carelessness nor want of the best intention on the part of the medical man, but due to want of thorough training. Despondently may he, the professor, say with Macbeth :

> "We but teach
> Bloody instructions, which, being taught, return
> To plague th' inventor. This even-handed justice
> Commends th' ingredients of our poisoned chalice
> To our own lips."

When the illness has to be explained to the patient and her husband it is not in human nature to candidly tell them that it might have been avoided if proper methods had been employed. They cannot be bluntly told—"This is the fault either of your doctor or of your nurse." But we know that this is practically always the truth. And further, we may be quite sure that the public will find it out for themselves very soon.

In trying to discover a way out of this unfortunate state of affairs, and to avoid such catastrophes, we may

compare the method for turning out the complete accoucheur, as at present adopted, with the training which is considered necessary for the student in surgery. Surgery is, no doubt, a very much wider subject than midwifery ; but as far as medical practice is concerned it cannot be considered a more important one. And surgical cases which involve the management of large fresh wounds are extremely rare in the experience of men in general practice. In midwifery, on the other hand, large absorbent surfaces are of necessity produced at every labour. When such surfaces are untouched, as the placental site is in a labour which has run its normal course and in which no vaginal examination has been made, they heal as aseptic wounds. But either from necessity, or from an inability on the part of the physician to desist from interfering, they are often put in the way of being contaminated, and it is quite obvious that aseptic handling is as necessary here as in any surgical case.

But compare the careful instruction which the student is obliged by the examining Boards to undergo at the hands of the members of the hospital staff—the six months' dressing, and the practice of surgery during two winter and two summer sessions—with the casual way in which he is allowed to get his smattering of midwifery. All that is required of him in the way of practice is "attendance on twenty labours." "Attendance" is a word which is capable of a very elastic interpretation, and may be held by some to consist of merely looking on, without making a single examination or performing a single manipulation. Moreover, the certificate may be "signed by one or more legally qualified practitioners" —that is, including teachers who are useful neither by precept nor example. The "practical" work is seen to be, or at least it is seen that there is no reason for its not being, simply a farce. Finally, to make matters worse, and to completely show in what esteem the subject of midwifery is held by the examining Boards, the student is allowed to pass his examination in it at "any time after

the completion of the fourth year of professional study at a medical school, not less than one year after the passing of the second examination, on production of the required certificates." In medicine and surgery, after passing the second examination, and before he is allowed to be examined in those subjects, he has very properly to spend two winter and two summer sessions in receiving clinical instruction. This extraordinary arrangement as regards midwifery led to an examiner being gravely informed by a candidate that he could not answer a certain question in this subject—the particular one being a simple question on albuminuria—"because he was not going to do his medicine till next year." A delightfully simple and refreshing way of looking at the purposes for which qualifying examinations were instituted, but quite a logical one! To find a parallel in history to the treatment of our unfortunate subject we must go back in imagination to the favourite heroine of our early youth, and remember how *she* was very badly treated and kept in the background by *her* two elder step-sisters, and how, on the occasion of a certain festivity, she was only able to be taken there in a most furtive manner, and after extraordinary difficulties had been got over. She, of course, got there very late, while her step-sisters had been there for a long time; and even then, although she had a great success, she was obliged to leave in a hurry before the party was over. It would be sad to pursue the story any further, when we think how the beautiful garments and the coach and horses that she had had given to her turned back again into ugly things, and how she became poor Cinderella once more. But we might hope that the happy ending of the story will come true, except, of course, the humiliation of the elder sisters, for we do not at all want medicine and surgery to be deposed from their important position.

In Ireland midwifery is treated with more respect—at least, the arrangements sound better. The student is obliged to attend a recognised midwifery hospital or

maternity for six months, and he has to be present at thirty labours. This requirement is at all events a recognition of, and some sort of an aspiration towards, better things. It is also of great importance in prescribing a definite period during which the student must be attending to midwifery. But it can be made quite futile if the student likes, for he can easily "attend" at the hospital in such a way as to get signed up for six months' attendance and thirty cases and never get one particle of good from it all.

So much for the minimum required by the examining Boards. Let us see what is done in actual practice. At any time after passing his second examination the student may take his twenty cases. They are most commonly taken in the outdoor maternity of his own hospital. If the rules of the hospital are obeyed (and they are entirely gratuitous rules from the point of view of the examining Boards) he is accompanied to at least his first case by the resident obstetric assistant, whose moral support enables the student to bear without discomposure the rather startling episodes of a labour witnessed for the first time. It depends entirely on the senior man whether the student learns anything of real value or not on this occasion. In most instances, since the senior has himself been taught in the same haphazard way, he is unable to convey to the pupil anything of the fundamental principles of the subject. When the next case comes the student knows probably little more than how to maintain an appearance of self-possession; and if it happens to be one of, say, contracted pelvis, there is no reason why he should recognise it, and he naturally allows the woman to proceed on her dangerous course until the head has become impacted, and she suffers from the dangers of obstructed labour. Or in a normal case he will forget, in the excitement of the moment, to be careful about his antiseptics. And such possibilities may be indefinitely multiplied. Supposing he has to deal with nothing but normal cases in his series he is perhaps even worse off than if half his patients had been the

subjects of dangerous complications, for he will go on his way into the world without ever having the chance of learning to recognise the presence of abnormality, much less the chance of seeing how it should be treated. It is, of course, the learning to recognise abnormal conditions at once that is almost the whole battle in midwifery, for when they are recognised early the treatment of them in nearly all cases is comparatively easy.

It may be said that the independent charge of cases in this way is likely to engender habits of self-reliance, and under different circumstances this would be true, but if self-reliance is acquired on a basis of ignorance the result can only be disaster. The different circumstances would exist if the student had been thoroughly taught to know natural and unnatural conditions when he saw them.

And so, after all the days and nights spent in repulsive surroundings, and in still more repulsive society, the average fully-qualified man enters the profession with a very imperfect knowledge of practical midwifery; he has not even seen most of the phenomena of which he may have heard in lectures or read in books, and he has to acquire his experience by his mistakes. In the process of establishing his position as a reliable practitioner and of earning his living mistakes are very expensive, infinitely more expensive than a few months devoted, before he is out in the world, to the acquisition of sufficient knowledge and skill to make such mistakes impossible. Looked at from his patient's standpoint, the loss to the woman of health, it may be for years, or the loss of her life, valuable to her family and the community, makes it a more serious matter still.

When the public fully appreciate the state of affairs, as they must infallibly do before long, the position of the medical profession in general and of such a Society as this, the leading authority in the country, will, if no effort has been made to remedy the evil, not be one to be altogether proud of.

It must not be supposed, however, that no one has

realised the imperfection of the midwifery education in this country until now. On the contrary, efforts to amend it have been made, but without the least success. The General Medical Council, who are supreme in matters pertaining to the education, qualification, and subsequent professional behaviour of the medical men of the kingdom, have been petitioned on the subject, and have on one occasion, as it would appear, been spontaneously stirred to look into the matter. But the results, for various reasons, have been practically nothing. It will seem strange to most of us that before 1902 there had not for a long time been a teacher of midwifery on the Council. We are now fortunate enough to be represented by Sir John Williams, and we may hope for better things.

A Report of the Education Committee of the General Medical Council on the subject was drawn up and adopted in 1896. It was to the effect that a student's practical work might consist of three months' attendance on the indoor practice of a lying-in hospital, or of being present at twenty labours, five of which must have been conducted under the direct supervision of a registered practitioner. There is no definition of what is meant by "supervision," and, in fact, it can be interpreted, at the supervisor's pleasure, into almost nothing at all. And here again the quality of the teacher is evidently a matter of no importance. There is yet one more point to be noticed in the teaching of midwifery as prescribed by the Boards. In medicine and surgery the student has to lay a foundation of anatomy and physiology before he begins pathology. Now, although the two fundamental subjects are taught in a very complete way in so far as they serve the purposes of the two branches I have named, the anatomy of the pregnant uterus and its contents, and the physiology of pregnancy and labour and the lying-in period receive no attention. In consequence of this these elementary subjects are all left to the lecturer on midwifery, who has to teach this part of the subject in the most detailed manner before he can begin upon the mechanism of labour and

the pathology of the whole subject. It is obviously impossible to do this in a three months' course.

If these deficiencies in the theoretical teaching of midwifery could be made good by practical work, they might not be considered of vital importance. But as things stand they cannot, and many students embark on their career without having learned even how to pronounce the names of many processes and many of the diseases which may later on spring on them. Let us see now in what opinion our methods of teaching midwifery are held by an authority on the subject in another country. I quote from a short but important article on this subject written by Dr. Herman in the 'Practitioner,' for April, 1896. The extract has already been quoted by Sir William Sinclair in an address on the same subject. It is Dr. A. Martin, of Berlin, from whom Dr. Herman translates. Dr. Martin says: "The arrangements of the medical schools in England for midwifery education are very imperfect. If we look away from the long-renowned lying-in hospital, the Dublin Rotunda, and the very limited similar opportunities in Edinburgh and Glasgow, we find that the medical student has nothing analogous to our midwifery clinics. The student is taught midwifery theoretically. He learns practice among the out-patients. To these the professor of midwifery hardly ever goes. In London, for instance, these professors live in the far West, miles away from their hospitals and from the midwifery out-patient departments attached to them. The teaching in midwifery is almost exclusively in the hands of young assistants, who have been qualified one, or at most two, years, live away from the places in which the patients are delivered, and are, or should be, called if the labour does not go on naturally. It depends, therefore, entirely on the pleasure of these young assistants whether the student is or is not clinically instructed in the mechanism of labour, the aseptic management of childbed, and all further questions. It is to be considered also that there is at hand no trained midwife or monthly nurse. The student must more or

less instruct himself. It says much for the value of the theoretical teaching that these young men do not have more disastrous experiences than in fact actually happen."

In Germany the regulations for the course in practical midwifery previous to the State examination are that a candidate shall have attended regularly two half-year courses in a lying-in hospital, and have personally delivered four women in the presence of the teacher or the assistant physician.

In France the corresponding rule is that the student shall have attended a course of three months in a lying-in hospital recognised by the Faculty of Medicine.

There is no need for me to say more on this aspect of the case. I think we may perhaps agree that our teaching is quite inadequate to the importance of the subject, and the question to consider is whether any attempt ought to be made to better it. I think there can be only one opinion about that. How far a Society such as ours should go in the politics of medicine is a matter for argument. We have taken part in such politics in an indirect but very decided manner, as we know, and the founders of our examinations for midwives, who were the members of a committee of our Council in November, 1870, thereby established a precedent of a kind. It was, of course, not a strictly parallel case to that of our Society taking steps to obtain an alteration of the regulations for the education of students in midwifery. But their action had without doubt the very greatest influence in bringing about a far more radical change than a mere modification of existing rules, for it led to the passing of an Act of Parliament.

Bacon says: "I hold every man a debtor to his profession; from the which, as men, of course, do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto."

In this spirit, and having done with criticism of the destructive kind, I venture to ask you to consider how

we may be a help as well as an ornament to our profession, and what we can do to improve it in midwifery practice.

Undoubtedly the best way for a student to learn practical midwifery is to do his work in a lying-in hospital where there is a teacher who devotes himself entirely to the charge of the hospital and the pupils, and is a recognised and distinguished authority on the subject. This is impossible in London at present, for there is no such hospital accommodation for all our students. It may be possible in other towns. The next best thing, and the only way I see out of the difficulty as things are, is for every teaching hospital to have a lying-in ward. The reasons for abolishing lying-in wards in general hospitals now no longer exist: we do not fear the worst the surgeons can do to our cases, nor need they apprehend any danger from us. Lying-in wards do exist at two of our hospitals, and I understand that they are to be shortly introduced into others.

The number of lying-in beds would have to be in a certain proportion to the average number of students trained annually, after it had been settled how many cases a student should be required to attend in hospital before he undertook work in the out-door maternity. For the combination of a thorough training in the hospital with the subsequent charge of cases outside seems to me to be the best possible arrangement. The whole service, inside and out, would have to be under the charge of a man of some experience, and one selected especially for this purpose. He would be under the direct control of the obstetric physicians. The appointment might be one of somewhat the same standing as the present one of obstetric tutor, at a reasonable salary. Then, in place of the present rule, demanding attendance on twenty cases only of labour, which can be vouched for by any person possessing a medical qualification, it ought to be made compulsory for every candidate to have attended regularly the practice of a lying-in hospital, or of the lying-in wards of a

general hospital for three months, and to have personally attended thirty cases of labour in the following way: six cases must have been attended in the hospital, the candidate having made all the necessary examinations, abdominal and vaginal, and performed all the manipulations of delivery under the supervision of a recognised teacher. (Full notes are to be made in each case, in a manner satisfactory to the teacher, of the patient's previous history, of the pregnancy, labour, and lying-in period, and of the progress of the child.) The remainder of the thirty cases may be attended outside the hospital, under the control of the teacher, full notes being kept as before.

I would suggest that the thirty cases be taken in the student's fifth year, not less than two years after passing the second examination. He would then go up for his final examination in all three subjects, medicine, surgery, and midwifery, which he will certainly have to practise simultaneously, at the end of his fifth year.

The attendance in the gynæcological wards and at clinical lectures on the diseases of women might remain as at present.

Further, if it were considered advisable—and I think it is—the student should be obliged to attend two courses of lectures on systematic midwifery—the first course, to be attended in the third summer session, on the anatomy and physiology of pregnancy, labour, and lying-in, and of the new-born child; and the second course, in the fourth summer, on the pathology of the same.

I have named six cases as the number to be attended in the hospital; but if this seemed impracticable, a smaller number might be allowed, for even one case properly and thoroughly done would be worth more to the student than twenty or any other number attended in the way which now obtains. But there ought to be no great difficulty in managing five. It depends, of course, on the number of lying-in beds obtainable in proportion to the average number of students trained in each year. I calculate that ten beds, arranged in three wards so as to allow for

cleansing between every two batches of patients in each ward, would accommodate about 180 cases a year, and if each student took five cases that number of beds would be enough for thirty-six students. If there were more beds, a larger number of cases per bed per annum would be possible, as the ward-cleansing could be arranged with more economy of time. A labour-ward would be required for every ten or twelve beds.

The duties of the teacher in this department would be: to supervise every labour in the wards, and to see that the student to whom the case was allotted took every advantage of the opportunities for making examinations and for becoming familiar with all manipulations and details in the management of labour; to see that each case was fully reported; and to go round the cases with all the students at stated times; to accompany every student to his first case outside, and show him how to adapt his now very adequate knowledge to the conditions of outside practice; to go to every case where the student found any important abnormality, and see that appropriate treatment was applied, judging when it was necessary to send for the member of the hospital staff in principal charge of the department. The obstetric physicians would visit the wards regularly, and teach on the cases. It would be no loss to a teaching hospital to devote such a number of beds as I have mentioned to lying-in cases; for students, other things being equal, would certainly choose hospitals so equipped in preference to those devoid of such opportunities for learning, and if all the teaching hospitals of London had these wards there would be a strong inducement for students generally to come to this city rather than go elsewhere.

In this very imperfect address I have tried to show the weak points of our present system of training students in practical midwifery. It is a system which was contrived many years ago, when midwifery was not in anything like the scientific position in which it is to-day. The system has not been improved in spite of all the advances that

have been made in obstetric science, nor in spite of the addition of an extra year to the curriculum. I am very certain that there is a strong feeling among the teachers of obstetrics in this country that students are not properly taught, and that they go out into the world without having obtained what we profess to give them, and that in consequence a great many lives are unnecessarily lost. I know also that the men who are in active practice throughout the country are convinced that the teaching they had as students, however recent their studentship may have been, was entirely inadequate.

If I am accused of washing our dirty linen in public, I can point to others who have adopted the open-air laundry method before me. At least three teachers of midwifery have put on record in a decided manner their feelings on the subject, and have each suggested improved methods of teaching, all of them practical.

Dr. Herman, in an article in the 'Practitioner' of April, 1896, already alluded to, asks what would happen if the teachers of medicine and surgery were to see as little of the cases from which the students had to learn as the teachers of midwifery do at present; and if the students were left to make the diagnosis, and when in doubt call in the house-physician or house-surgeon; and finally, if this officer asked the assistance of the visiting staff only in cases of great difficulty or danger. He points out that, as I have already said, midwifery cases require the most skilled attention in the early stages of conditions that may develop into difficulty; and he recommends that a teacher should go with the student directly labour has begun, and show him how to ascertain that the conditions are normal. If they are normal, the student could be left to finish the case. If they are abnormal, he should be shown how to do what is necessary. Dr. Herman discusses only the modification of the existing out-patient method of practice; but I am sure from what he says that he would approve of teaching in wards.

Sir William Sinclair delivered a very important address at the Owens College, in 1903, on the same subject. He mentioned, among many other points, the fact that the examining standard and the teaching standard are at very different levels in this country, and that a student is unable to properly bring himself up to the height of the former by the thoroughness of the latter. We may hope with him that this is an evolutionary stage of a completely developed system. He quoted from a letter addressed by the Dean of the Owens College to the General Medical Council, in 1896, the following suggestions: (1) "That the Council insist on three months' attendance at a lying-in hospital; (2) that the practical work should be supervised by a member of the hospital staff; and (3) that certificates of instruction in midwifery should not be received from a private practitioner any more than for clinical medicine or surgery." These regulations seem to me to be most wise. But, as we know, there has been no attempt on the part of the body addressed to bring any such regulations into force. Sir William Sinclair recommended lying-in wards in general hospitals in default of teaching in lying-in hospitals, and was in agreement with what I have already said in recommending that the student should do his practical work in his final or clinical year.

Dr. John Edgar, the Professor of Midwifery in Anderson's College, Glasgow,* has spoken very decidedly on the same lines. He recommends the appointment of a special teacher in midwifery, who shall devote himself entirely to this subject, taking only consulting work outside his hospital duties, pretty much as is done in the German universities. He objects strongly to the certificates of attendance on cases being signed by any medical man other than a teacher of a hospital, and considers that the first six cases should be indoor, the student being drilled in the whole aseptic management of labour.

Surely all the weight of opinion I have adduced, and the discontent which I assert is prevalent among all

* 'Glasgow Medical Journal,' September, 1898.

members of the profession, must lead to something. It only needs the spark to fire the train. It seems to me that we ought not to wait to be shamed into action by pressure from outside, but with the confidence inspired by the successful result of our patient work in improving midwives we ought seriously and with set purpose to think about setting our own house in order.

APRIL 5TH, 1905.

W. R. DAKIN, M.D., President, in the chair.

Present—45 Fellows and 6 visitors.

A book was presented by Dr. H. J. Garrigues.

Thomas Crisp English, F.R.C.S., M.B.Lond., Robert Martin McQueen, L.R.C.P.Lond., and William B. Thomson, M.B., B.Ch.Glasg., were admitted Fellows of the Society.

George Rice, M.D.Durh. (Derby), G. F. Darwall-Smith, M.B.Cantab. (Woking), and Robert Humphrey Marten, M.B.,B.C.Cantab. (Adelaide), were declared admitted.

The following candidates were proposed for election: Rachel Cohen, M.B.Calc., F.R.C.S.I.; Victor Evelyn Collins, M.B.Lond.; St. Leger Hugh Gribben, M.D.Edin.; Charles John Nepean Longridge, M.D.Vict., F.R.C.S.Eng.; Francis Lionel Provis, F.R.C.S.Edin., L.R.C.P.Lond.; Alfred Thomas Masters, L.S.A.

The following ladies were elected Fellows of the Society: Edith Serjeant, L.R.C.S.&P.Edin. & Glas.; Helen Mary Serjeant, L.R.C.S. & P.Edin. & Glasg.

Report of the Pathology Committee on Dr. H. Williamson's Specimen of Grape-like Sarcoma of the Cervix Uteri.

We have examined this specimen and the microscopic sections cut therefrom, and agree that it is a grape-like sarcoma of the cervix uteri, as described by the exhibitor.

G. F. Blacker.
T. W. Eden.
J. S. Fairbairn.
Cuthbert Lockyer.
Herbert Williamson.
Corrie Keep.
W. S. A. Griffith, *Chairman.*

March 15th, 1905.

Report of the Pathology Committee on Lieut.-Colonel Sturmer's Specimen of Abdominal Gestation.

We, having examined this specimen and microscopic sections taken from the anterior and posterior walls of the body of the uterus (kindly prepared by Dr. C. Lockyer and Dr. H. Williamson) find no conclusive evidence as to the original site of the implantation of the ovum.

G. F. Blacker.
Cuthbert Lockyer.
Herbert Williamson.
Corrie Keep.
W. S. A. Griffith, *Chairman.*

April 5th, 1905.

ABDOMINAL HYSTERECTOMY FOR SEVERE CONCEALED ACCIDENTAL HÆMORRHAGE.

By J. H. Targett, M.S.Lond., F.R.C.S.Eng.

As cases of concealed *ante-partum* hæmorrhage of the grave type are happily very rare, and as no record of its treatment by abdominal hysterectomy is to be found in the 'Transactions' of this Society, I have ventured to bring forward this case as a contribution to a subject which is still under discussion—the best mode of dealing with this dangerous complication of pregnancy. The patient, after being in imminent peril of her life, and having passed through a prolonged and stormy convalescence, has now regained her health and strength.

Clinical history.—A multipara, aged 34, was sent to the hospital in a very collapsed condition on October 19th, at 4 p.m. Her friends stated that she had been seized with severe pain in the lower part of the abdomen early that morning, and that she soon became very faint and sick.

It was subsequently elicited that she had had seven children, and with the last two gestations there had been *ante-partum* hæmorrhage. On the last occasion the hæmorrhage occurred at the seventh month, and was treated by plugging the vagina. Labour ensued, but the child was still-born. The patient now considered herself to be about six months pregnant.

When first seen by a medical man she was very faint and in great pain, for which opium was given. The os uteri admitted the tips of two fingers, and as there had been some external hæmorrhage the membranes were ruptured, and a leg was brought down into the cervix. During the afternoon the patient again became pulseless, and as labour had not advanced, the vagina was plugged with gauze, and the woman was removed to the hospital. There had been a little more hæmorrhage from the vagina, but there were no uterine contractions.

When I first saw the patient (6 p.m.) she was lying on her left side, looking extremely blanched, lips bloodless, beads of sweat on her face; pulse 140, very soft and compressible. The left foot of the fœtus was at the vulva, the vagina was plugged with gauze, and the abdomen was tightly bound up with a roller towel. On removal of the binder, the outline of the uterus was easily seen and felt, reaching up to the ensiform cartilage. The uterus was very tense and hard, and its surface was uneven. It was also tender, but not excessively so—possibly in consequence of the opium which had been given before admission. The legs were much swollen, and the urine was found to contain albumen.

Five pints of saline fluid had been given at intervals *per rectum*, and most of it had been retained. But in spite of this her condition had not improved since admission. Those who had seen the case earlier in the afternoon were convinced that the uterus had enlarged since that time. The os uteri now admitted one finger alongside of the leg of the fœtus, but the edge of the cervix felt like a very tight ring and could not be dilated with the finger.

Treatment.—The diagnosis of concealed accidental hæmorrhage of the gravest type was easily made. In deciding on the mode of treatment the following points were considered:

(1) That internal bleeding was still going on because of the recurrent attacks of fainting and the progressive distension of the uterus.

(2) That owing to the enormous size of the uterus it would be very difficult to empty it rapidly through a small and rigid cervix.

(3) That enlargement of the os by incisions might prove dangerous from further hæmorrhage difficult to control.

(4) That as rupture of the membranes and bringing down a leg had not excited uterine contractions, there was considerable risk of *post-partum* hæmorrhage from an inactive uterus (as had actually occurred at previous

labours), which in her present state of extreme exhaustion would certainly prove fatal.

For these reasons abdominal hysterectomy was advised as the quickest method of emptying the uterus and controlling the hæmorrhage.

Operation.—Hot compresses were applied to the abdomen while the preparations for laparotomy were being made. The protruding limb of the fœtus was cut off, and the vaginal plug was removed; this was followed by a large gush of blood, at least half a pint in quantity. A median incision, as in Cæsarean section, exposed the enlarged uterus; it was almost black in colour, and its surface was marked with hæmorrhages beneath the serous coat. The uterus was brought outside the abdomen before being opened, and the peritoneal cavity was packed round with gauze rolls in order to prevent infection by the uterine contents. As the membranes had been ruptured many hours and the leg of the fœtus had been in the vagina, it was thought that the uterine contents might not be sterile.

On incising the uterus a large basinful of black clot was collected, representing some 3 or 4 pints of blood. The placenta seemed to be completely detached, and was lying below the clot. It was easily removed along with the fœtus, and the uterus was tightly grasped by an assistant. The broad ligaments were now rapidly ligatured on each side, the peritoneum was pushed down in front, and the uterus removed by supra-vaginal amputation. The cut edges of the uterine stump were united by several interrupted catgut sutures, and the peritoneal flap was stitched over the stump in the usual way. While the abdominal incision was being closed saline fluid was injected into the brachial vein, and similar fluid was left in the peritoneal cavity. Injections of strychnine were also administered. At the conclusion of the operation the pulse was better than at the beginning. The legs were then firmly bandaged, and the lower end of the bed was raised.

The fœtus measured 40 cm. and weighed 1360 grammes (3 lb.). It corresponded with about the twenty-eighth week of gestation. Unfortunately, the placenta and uterus were thrown away by mistake before a proper examination of them had been made.

The subsequent progress of this case was by no means uneventful. During the first week the temperature was irregularly raised, but did not exceed 101°. The pulse very slowly fell from 140 to 110, and the face remained extremely pale. On the eighth day some pus was found in the urine, and on vaginal examination there was some thickening and tenderness in the anterior fornix, though the lateral and posterior fornices were quite supple. The pyuria may therefore have been due to the bursting of a small parametric abscess in front of the cervix.

After this the patient improved considerably, and the pulse-rate and temperature both diminished. But on the twentieth day (November 7th) she developed thrombosis of the left leg. This attack came on quite suddenly, for she seemed much as usual in the early morning. It began with severe pain in the left leg at 10 a.m., and the patient soon became very sick, almost pulseless, and collapsed. There was no pain in the chest or dyspnœa, as in pulmonary embolism. The leg rapidly swelled, and when I saw her at 3 p.m. she was extremely blanched, pulse 140–150, face covered with beads of sweat, but quite conscious. The swollen leg was of a dusky brown or livid tint, suggesting embolism, but a pulse could be detected in the posterior tibial artery. Under appropriate treatment this attack slowly passed off, but it was nearly a fortnight later before the pulse rate had fallen below 100. The abdominal wound had healed satisfactorily, and the patient was now feeling much better and regaining strength. However, on November 24th, seventeen days after the above attack, the right leg became affected. The symptoms at the onset were less severe than on November 7th, but the attack began in the same way, with severe pain, sickness, and rapid pulse. The right

thigh quickly swelled, and the œdema spread into the leg. After a few days the patient began again to improve, the swelling steadily subsided, and the temperature fell to normal on December 7th. The pulse rate, however, did not keep below 100 until many days after the temperature had reached the normal line.

Dr. Handfield-Jones questioned the necessity of removing the uterus in this case. Considering that the lower segment of the uterus had already opened up sufficiently to allow a leg of the child to be delivered, he thought there would have been no difficulty in performing vaginal Cæsarean section and delivering the child by that method. The fact that the uterine tissue had passed into a state of tonic contraction made it unlikely that any serious *post-partum* hæmorrhage was likely to arise. The case was one of great interest, and he congratulated Mr. Targett on its successful issue.

Mr. Targett, in reply, said that the uterus was removed after the Cæsarean section in order to avoid the risk of any *post-partum* hæmorrhage from uterine inactivity and deficient retraction. There was also the slightly increased risk of sepsis from the fact that the membranes had been long ruptured and a fœtal limb protruding into the vagina. He thought that vaginal Cæsarean section might have answered in this case, although it would probably have taken a longer time than the abdominal hysterectomy and perhaps more blood would have been lost in the operation.

CALCIFIED TUMOUR OF UNCERTAIN ORIGIN REMOVED BY LAPAROTOMY FROM DOUGLAS'S POUCH.

Shown by Dr. Arthur H. N. Lewers.

A. L—, a married woman, aged 43, was sent to see me by Dr. Roland Smith on April 21st, 1904.

She had been married fourteen years, and had had three children, the last seven years previously. She had had one or two miscarriages, which occurred before the birth of the last child.

At the time when I first saw her she complained of

having had a brown or sometimes green vaginal discharge for some ten weeks. She also had had backache for some time, and said she felt weak and could not walk far. She also complained of "bearing down" if she did much.

Menstruation had been regular, and occurred every three weeks, lasting five days. Lately the loss had been less than formerly.

There had been no trouble as regards micturition. The bowels were generally inclined to be loose. There had been no change as regards micturition, and her appetite was generally good.

Examination of the abdomen detected nothing abnormal.

On vaginal examination a vascular caruncle, well-pedunculated, was seen projecting from the orifice of the urethra.

The uterus was retroverted, normal in size, and very fairly movable.

In the right posterior quarter of the pelvis a somewhat ovoid swelling was felt. It was of stony hardness, and the surface of it was slightly irregular. This hard tumour was absolutely fixed, and it appeared to be of the size of a hen's egg.

The opinion I came to was that the tumour was probably a calcified fibroid of the ovary, and I advised its removal. The patient consented, and was admitted into the London Hospital on May 5th, 1904.

Operation, May 27th, 1904.—On removing the abdomen it was found that both ovaries were quite normal, and free from adhesions. The uterus was also normal; its posterior peritoneal covering had its normal lustre, and was free from adhesions.

The hard mass mentioned as felt on vaginal examination lay in Douglas's pouch, rather to the right of the middle line. It was imbedded in a thin envelope of membraneous adhesions. These were scratched through with dissecting forceps, and the tumour was then enucleated like a nut out of its shell. The adhesions in which the tumour lay were closely attached at the rectum,

but did not involve the posterior surface of the uterus at all. No ligatures were used, and the abdominal wound was completely closed.

The patient made an uninterrupted recovery. The vascular caruncle was removed before she left the hospital.

Description of the specimen.—The tumour removed measured 2½ inches in length, 1½ inch in breadth, and was 1½ inch thick. Its surface was irregular, and was completely calcified. On section the interior of the tumour presented a greyish-white appearance; the tissue forming the substance of the tumour was tough. There was no calcification of the interior of the tumour. The calcareous capsule was about $\frac{1}{16}$ of an inch thick.

A portion of the tumour was sent to the Clinical Research Association, and Mr. Targett reported on it as follows:

"This specimen is probably a fibroid of the uterus which has undergone extreme hyaline degeneration and necrosis. There is a deposit of calcareous material on the surface."

Remarks.—It will be seen, from the account given of the appearance of the neighbouring parts at the operation, that although it is possible and even probable that the tumour originally sprang from the uterus, there was nothing seen at the time of the operation by which its place of origin could be identified. Both ovaries were normal. The uterus also appeared quite normal, and showed no indication of the presence of other fibroids. Calcified fibroids have been recorded as having been spontaneously expelled from the uterus *per vaginam*. It seems probable that a subperitoneal fibroid of the uterus may have undergone calcification, and become separated from the peritoneal surface of the uterus several years before the patient came under observation, and that the point on the posterior surface of the uterus where the separation occurred became in process of time covered by peritoneum, so that the original point of attachment could no longer be identified.

Mr. Targett thought that the specimen shown by Dr. Lewers was probably the result of separation of an old calcified subserous fibroid of the uterus. There was, however, another source of such detached calcareous bodies, viz. enlarged appendices epiploicæ. Under rare circumstances these masses of fat were liable to undergo saponification, followed by the deposition of salts in the affected tissues. But he did not think that fat calculi of this nature would attain the size of the specimen exhibited.

A UTERINE FIBROID REMOVED FROM A PATIENT AGED 20.

Shown by Dr. Henry Russell Andrews.

Uterine fibroids at the age of 20 are sufficiently rare to warrant the recording of this case. Dr. Herbert Spencer, in a paper published in the 'Obstet. Soc. Trans.,' vol. xl, 1898, collected 40 cases of uterine fibroids occurring in young subjects. Only 8 of these patients were under 21, and in some of them, as Dr. Spencer pointed out, the evidence of the nature of the growth was unconvincing.

R. A—, a Jewess, aged 20, came to the Out-patient Department of the London Hospital on January 25th, 1905. She had been married about a year, and had a miscarriage five months after marriage. Four months ago she was admitted into a special hospital on account of an abdominal tumour. Abdominal section was performed, but she was told that nothing had been removed and that time would show what the tumour was. She understood from this that the tumour was the pregnant uterus. She came to the London Hospital to know whether she was pregnant or not. The tumour had been increasing in size rapidly since the operation, but she had noticed no fœtal movements. Menstruation was regular. For the last three weeks she had been troubled by morning vomiting.

A smooth, elastic, slightly movable tumour was found rising out of the pelvis to a point rather higher than halfway between the umbilicus and the ensiform cartilage. No dipping sign could be obtained, no contractions could be felt, and no fœtal heart could be heard. There was a median laparotomy scar five inches long. The breasts showed no signs of activity. *Per vaginam* the abdominal tumour was found to be the body of the uterus. Ballottement could not be obtained. The cervix was rather blue, but was not soft or swollen. A diagnosis of single soft fibroid was made, and the patient admitted for abdominal hysterectomy.

Under the anæsthetic nothing further was made out except that the supra-vaginal part of the cervix was considerably elongated. A sound passed 4½ inches on the left side of the mass. On opening the abdomen the uterus was seen to be regularly enlarged, bluish in colour, and very vascular, looking exactly as if it were pregnant; the body was amputated in the usual way. The patient made an uninterrupted recovery. The uterus, which weighed 4 lb. 5 oz., contained a single soft interstitial fibroid situated in the right side, the uterine cavity, which was considerably lengthened, lying to the left of the tumour. Microscopically, the tumour consists of fibres many of which have undergone myxomatous degeneration. It is evidently a fibroid, not a sarcoma.

It must be very rare for an operator to be unable to say, after opening the abdomen, whether a uterus large enough to form an abdominal tumour is pregnant or not. In this case, however, at a time when absolute signs of pregnancy could not be expected, the difficulty of diagnosis must have been considerable.

Mr. Alban Doran asked if Dr. Andrews saved the ovaries when he removed the uterus. In so young a subject, at least, there seemed little doubt that these organs should not be sacrificed.

Dr. Cuthbert Lockyer said the case was very important in so far as it was another example of the fact that large fibroids

are sometimes found in quite young subjects. In his hospital practice Dr. Lockyer had met with one case in which a fibroid reaching above the umbilicus was present in a single woman, aged 21, and another case in which the patient was single and aged 27. In the latter instance the tumour reached the epigastrium. In both cases the fibroids were degenerate, having undergone myxomatous and cystic change, as in Dr. Russell Andrew's specimen. The details of the first case had been already published in the 'British Medical Journal,' October, 1901, and the subsequent history appeared in the same journal, October, 1904. Dr. Lockyer was under the impression that fibroids in young subjects frequently underwent degeneration, and to this latter fact they owed their obtrusive characteristics.

Dr. Boxall referred to a case of soft fibroid burrowing in the left broad ligament which he had removed by hysterectomy twelve years ago in a young lady, aged 23. In that case the softening proved to be due to œdema. The softness of the swelling combined with the history and extensive inflammatory changes, of which there was ample evidence, led to the diagnosis of abscess resulting from hæmatoma in the broad ligament.

Dr. Cullingworth said it was most important that every case of fibro-myoma of the uterus occurring in young subjects should be placed upon record, as the notion that such cases were excessively rare still seemed to prevail in many quarters, so much so, indeed, that fibro-myoma was liable to be excluded from the possibilities in a case of doubtful tumour in a woman under 25. A considerable number of cases of fibro-myomata in young women had recently been brought before the Society, and it was interesting to note the comparative frequency with which the tumour had been found to be degenerating or, at any rate, in a condition of œdema.

Mr. W. Gandy remarked that he remembered a case he saw many years ago, in a young lady, aged 28. The tumour could be felt well above the pubis; she had a thin discharge and much bearing-down pain; fragments of the tumour came away. The cervix was incised and larger pieces were expelled; this went on for about two or three weeks and finally the whole mass, about the size of a large orange, was spontaneously expelled. She made an excellent recovery, the uterus assuming its normal dimensions.

Dr. Russell Andrews, in reply, said that the idea of performing a myomectomy had not occurred to him, as the uterus was so regularly enlarged. Examination of the specimen when fresh showed that the uterine wall on the left of the cavity was so thin that myomectomy would have left a distorted flabby organ which could not have been of much use for child-bearing. Both ovaries appeared to be healthy and were therefore not removed.

THE CORPUS LUTEUM: COMPOUND LUTEIN CYSTOMATA FOUND IN ASSOCIATION WITH VESICULAR MOLE AND CHORIO-EPITHELIOMA.

By Cuthbert Lockyer, M.D., F.R.C.S., M.R.C.P.

(Received January 2nd, 1905.)

(*Abstract.*)

The author has attempted a systematic study of the normal and abnormal processes seen in the development and retrogression of the Graafian follicle and corpus luteum.

The following are among the *normal* processes submitted for discussion:—

1. The development and characteristics of the theca interna.
2. The origin and features of the lutein cell.
3. The fate of the stratum granulosum.
4. The formation of the corpus luteum.
5. The retrogression of the corpus luteum, including the disruption and dispersion of the corpus albicans.
6. The regeneration of ovarian stroma.

Among the *abnormal* processes are considered the development of:—

1. Lutein cysts.
2. Lutein hæmatomata.
3. Lutein abscess.
4. Lutein calcification.
5. Solid growths of lutein origin.
6. Excess and displacement of lutein tissue.

The author has classified lutein cysts according to their origin as follows:

During retrogression of the corpus luteum there arise
- I. Cysts from cavitation of the central blood-clot.
- II. Cysts from displaced lutein tissue by (*a*) Lymphangiectases.
  (*b*) Cystic degeneration of lutein cells.

During the maturation stages of a Graafian follicle there arise
- I. Lutein cysts with an epithelial lining due to persistence of the stratum granulosum.
- II. Lutein cysts devoid of an epithelial lining, due to absence of the stratum granulosum.
- III. Lutein hæmatomata.
- IV. Complication cysts.
- V. Lymphangiectases.

Attention is directed to the clinical importance of certain types of lutein cysts.

Relationship between excess of lutein tissue and overgrowth of trophoblast is suggested and discussed.

Mention is made of L. Fraenkel's work in connection with internal ovarian secretion and the value of "lutein" as a therapeutic agent.

A full description of four pairs of composite lutein cystomata is given. For this valuable material the author's thanks are due to Mrs. Scharlieb, Drs. Williamson and Andrewes, Dr. Carlton Oldfield, and Mr. Malcolm.

In my pathological Report on Mr. Malcolm's case of chorio-epithelioma following hydatidiform mole, which was shown at this Society in December, 1903, I expressed the opinion that the composite cysts of both the ovaries in this case were derived from lutein tissue. I was then requested by the President and Senior Secretary to make this matter the subject of a further communication, and with this end in view I proceeded to investigate the fate of the Graafian follicle during adult life. I have therefore attempted to take up the study of this body at the

point where Dr. Stevens' investigation ended. In his able treatise Dr. Thos. G. Stevens dealt with "The Fate of the Ovum and Graafian Follicle in Præ-Menstrual Life." I have endeavoured to elucidate certain points (which hitherto have never been touched upon in British literature) concerning the fate of the Graafian follicle after the onset of menstruation.

It is a striking fact that no investigator in Great Britain has ever made a systematic study of the development and retrogression of the adult Graafian follicle. My own attempt in this direction was, therefore, of necessity single-handed as far as my compatriots are concerned, but it has been a matter of some interest and satisfaction to me to have been told by one worker at least that since my article on this subject appeared in the 'Journal of Obstetrics and Gynæcology' he had practically come to the same conclusions as myself.

As above stated, it was with a view to working out the development of corpus luteum cysts that I found it necessary to trace the stages of maturation and retrogression of the Graafian follicle.

I will first consider the question of retrogression of the corpus luteum subsequent to its rupture. In this period in its life-history the original follicle has, as is well known, changed its naked-eye characteristics, and appears as an hæmatoma lined by a yellow lamina or convolutions of yellow tissue. It is, in fact, a type of lutein hæmatoma, since the yellow lining is made up of lutein cells. These lutein cells lie upon a tunic, known as the theca interna. The latter consists of modified ovarian stroma; it is the old tunica fibrosa of the Graafian follicle, now much altered in character. The theca interna is composed of highly-vascular and extremely cellular connective tissue. After the ripe follicle has discharged its liquor folliculi, and has shed its granulosa layer, together with the discus proligerus which invests the ovum, the vascular theca interna suffers considerable disruption. Its delicate capillaries, already upon the point of rupture, and in frequent instances already ruptured, undergo a further laceration. This is

brought about by the rise in local blood-pressure which occurs simultaneously with, and seems to explain, the actual bursting of the follicle itself. The ruptured capillaries of the theca interna pour their blood into the space previously occupied by the liquor folliculi, and the force of this blood-flow may be judged by the fact that some of the lutein cells which line the cavity become swept away into the interior of the blood-stream, and can be found lying free in the central clot. The body so formed is to all intents and purposes a lutein hæmatoma, and in its retrogression it closely follows the stages seen in the disappearance by absorption of any other blood-clot. The only point to notice is that here there is a lining of lutein cells to be disposed of. In connection with this lutein lining it is here necessary to point out that it is permeated with vessels which proceed inwards from the arterioles of the theca interna. The lutein cells are, in fact, arranged in festoons or groups, and between these compact clusters of cells lie connective-tissue trabeculæ carrying blood-vessels. This lining of lutein tissue becomes, after the formation of the hæmatoma, invaded by leucocytes and fibroblasts. The individual yellow cells gradually disappear, their places being taken by young granulation tissue. Whilst the lutein lining is being displaced by granulations and fibrous tissue, the central clot is being decolourised, and it becomes studded all over with branching fibroblasts, and the name "corpus albicans" is now applicable to it. The central white clot never, however, becomes so highly organised as does the true fibrous tissue which surrounds it, and which has displaced the lutein tissue. The peripheral granulations invade the fibrinous clot at various points and divide it up into several white segments. These are all that now remain to represent the original corpus luteum.

They become displaced far and wide in the ovarian stroma by new tissue, which is constantly being regenerated within the gland. These islands of passive inert tissue assume very characteristic features. They appear

as coiled strands of hyaline tissue, which stain an intense red with eosin; they are most abundant in the cortex and parenchyma, but may be found even amongst the large vessels at the hilum of the ovary. These residual fragments become ultimately destroyed by fibroblasts, but show a wonderful resistance, and can be demonstrated in menopause ovaries. With their disappearance the life-history of a Graafian follicle is brought to a close.

Two types of lutein cysts develop from flaws and irregularities, which may creep in and upset the above normal plan of devolution of the corpus luteum. In the first instance the lutein layer may not be totally destroyed by the circumferential granulation tissue; islands of lutein tissue may be left, and in these lymphangiectases may form, leading to cysts; or the lutein cells may undergo cystic degeneration, and so produce a cyst. In the second place, cavitation may occur in the imperfectly organised central clot, and thus a cyst is formed. The cysts formed within solid islands of lutein tissue will have lutein cells as their innermost layer. Those formed by cavitation of blood-clot often have a lining of fibrous tissue internal to the lutein cells.

I have not discovered any other ways by which lutein cysts can develop from the corpus luteum during its retrogression. They may, however, arise—in fact, generally do arise—in other ways during the maturation stages of the Graafian follicle.

In passing to the consideration of the evolution of the corpus luteum, we will first discuss the question of origin of the lutein cell. This cell has been regarded as a modified and highly-developed cell of the stratum granulosum. In the discussion on Dr. Stevens's paper above referred to, Dr. Bonney remarked that "he thought Dr. Stevens's specimen showed very clearly that in pre-menstrual life the granulosa cells retrograded *pari passu* with the ovum, whilst in adult sexual life they **continued to grow after dehiscence of the follicle and formed the lutein layer of the corpus luteum.*" He had examined the specimens attentively and could find

* The italics are my own.

in them nothing at all resembling the lutein layer. Seeing that much recent work by various observers tended towards the conception which allotted to the lutein layer the function of producing the internal secretion of the ovary, and seeing, further, that the most striking point of difference between the child's and the adult's generative organs lay in the fact of the latter possessing a corpus luteum and the former not possessing it, he thought that Dr. Stevens's work suggested strongly that it was *to the persistence and continued growth of the granulosa cells after the disappearance of the ovum** from the follicle by dehiscence that we owed that development of sexual characteristics which mark puberty."

Before I began the present investigation I fully shared in the belief that the lutein layer of the corpus luteum represented the granulosa layer of a Graafian follicle, but such is certainly not the case. The lutein-cells are derived from the connective-tissue cells of the theca interna. During the processes of maturation the connective-tissue envelope of the follicle becomes very vascular and congested, free hæmorrhage takes place within it, and it is amidst this hæmorrhage that the lutein-cell is evolved. It is a decidua-like cell, born in a bath of blood, from whence it probably derives its colour, as almost certainly it does its swollen and succulent characteristics. I find the question as to when the lutein cell first makes its appearance difficult to determine. That it is present before rupture of the ripe follicle I have been able to prove. I have seen an ovum surrounded by its discus proligerus lying free in the fluid contents of a space lined by lutein cells and devoid of the stratum granulosum (except the thalamic cells investing the ovum). A point of common observation is to find an intact stratum granulosum, represented usually by transitional and cubical epithelium, lying upon a zone of lutein cells surrounding a small cavity. I have never found an ovum in such a space. Can it be that the ova in all my sections have

* The italics are my own.

dropped out, or are all these cysts pathological? Are they, in other words, invariably lutein cysts with an epithelial lining? We have to attempt to make a critical distinction between a healthy maturing follicle and a degenerative lutein cyst. The ovum, as a determining factor, is wanting. What is there to help us? It seems not unfair to assume that some of these microscopic cavities are the one thing, some the other; some, that is, may be developing follicles which have lost their ova in the preparation of the sections, whilst others are pathological lutein cysts. The same difficulty obtains in differentiating early hydrops folliculorum from a normally-developing cyst. The absence of an ovum may be a pure accident. When dealing with a cyst the size of which corresponds equally well with that of a follicle midway in its development, or with a small lutein cyst, in the absence of an ovum, I know no means of determining which it may be. Hence my difficulty of fixing the time when the lutein cell should normally make its appearance, but I am anxious to correct the old view that it is only to be found after dehiscence. The majority of lutein cysts do not arise from corpora lutea at all—that is to say, from true corpora lutea, which result from the dehiscence of a ripe follicle. To repeat, lutein tissue is present around a follicle before rupture; and what is more, lutein tissue is present around follicles which will never rupture. The latter are lutein cysts. It is in the stage between the commencement of ripening and full maturation that most lutein cysts develop. At a certain stage in development some follicles degenerate into simple cysts (hydrops); others, a little later perhaps, acquire an early coat of lutein tissue, and then form distension cysts. When this cystic change occurs before the granulosa has disappeared an epithelial or granulosa-lined lutein cyst results; when it takes place after the stratum granulosum is no longer present, a non-epithelial lutein cyst results. To explain the origin of the latter variety I must pass to the consideration of lutein hæmatomata.

Lutein hæmatoma.—I have already stated that during the stages of ripening of the Graafian follicle the connective tissue which limits the stratum granulosum becomes extremely vascular, and young fibrous tissue cells develop within it in great abundance. At a still later stage in maturation congestion of the vessels and free hæmorrhage occurs in this tissue, and from the young connective-tissue cells the lutein cells are developed. When the outpouring of blood is excessive a lutein hæmatoma results. Its mode of formation is as follows: The hæmorrhage may not be uniform in amount around the periphery of a follicle, but be so excessive at one spot as to invert the stratum granulosum before it, rendering the lumen of the follicle horse-shoe shaped. Finally the granulosa gives way and is seen as broken fragments in the blood-clot now occupying the cavity of the follicle. I regard a lutein hæmatoma as always arising prior to rupture of a Graafian follicle, for it is then that the blood-supply of the theca interna is at its maximum. After rupture of a ripe follicle the cavity fills with blood, it is true; but this is a rapid and temporary effusion; under normal conditions, moreover, it is quickly followed by organisation of the vascular lutein tissue and theca interna. The stimulus of a presiding ovum is gone and with it subsides the intense vascularity and risk of hæmorrhage. The local excess of blood is dried up after the final avalanche. When the latter is excessive we do not get a hæmatoma of any considerable size, but the blood finds a vent through the normally ruptured spot which allows of the escape of the ovum and the thalamic cells which surround it. Under normal conditions, if such a loss should occur, it would be very slight for reasons already given; but it is conceivable that under the influence, say, of undue sexual stimulation the escape of blood into the peritoneal cavity might be sufficient to give rise to the signs and symptoms of internal bleeding and lead to the diagnosis of a ruptured ectopic gestation sac. Such cases must be extremely rare, but Mr. Targett has made a microscopical investigation in a case which only admits of this

interpretation. It is during the pre-dehiscent stage, then, of a Graafian follicle that we find lutein hæmatomata have their origin, at a time when the theca interna is most congested and soaked with free hæmorrhage. Another phenomenon which is noteworthy from the pathological point of view is, that the effused blood may divide the lutein lamina concentrically, so that the latter appears as two or more rings around the periphery of the hæmatoma. The intervening layers of blood may organise before the lutein tissue disappears, and the resulting new fibrous tissue may displace the lutein cells which still remain. I am convinced that most, if not all, true ovarian hæmatomata arise in connection with developing Graafian follicles, or in the course of the formation of lutein cysts. No other part of the ovary shows such a rich supply of young newly-formed but congested capillaries as the fibro-cellular theca immediately investing these maturing follicles.

The internal blood-pressure of the ovary, especially when unduly raised by the stimulus of menstruation or by the more persistent effects of inflammatory conditions, can more easily cause rupture of the newly-formed vessels than of those which are older and better developed.

Having fully considered the question of origin of lutein hæmatomata, we are now in a position to account for the origin of the non-epithelial lutein cyst. This variety of cyst appears to arrive in the same way, by the same means, and at the same date as a lutein hæmatoma. For after the congested vessels of the theca interna have relieved themselves by pouring blood into the cyst cavity, and after the granulosa has been stripped from off the wall of the cyst and broken up into discrete fragments by the blood thus effused, we find a process of cavitation taking place in the central clot and in this way a cyst is formed, exactly homologous in origin to that which arises from a ruptured corpus lutein at the commencement of its retrogression. The granulosa was destroyed during the formation of the initial hæmatoma; consequently the cavitation of the hæmatoma results in a non-epithelial lutein cyst. The

lutein layer in such cysts is usually overlain by a layer of fibrous or fibrinous tissue. This is easily accounted for, since it represents the outermost part of the clot whose centre has undergone cavitation. A few more explanatory remarks are called for respecting the epithelial variety of lutein cysts. Their characters are not uniform. They differ greatly in the nature of their epithelium. Their lining may consist of spherical cells, like unaltered granulosa cells or of transitional or cubical cells, and some observers have found a squamous epithelium lining these cysts.

This variation is due to the great tendency to metaplasia in this type of cell. The commonest shape for the epithelial cells to assume is columnar. The granulosa cells become columnar when associated with pathological changes in the follicle itself.

Another type of lutein cyst is the "complication" variety. Here a lutein cyst approximates and fuses with a cyst of another variety. I am showing two microscopical specimens which demonstrate this process. In both instances there is a comparatively large distension cyst with smooth walls lying side by side with, in the one case, a corpus luteum, and in the other with a lutein hæmatoma. All that is required in these two instances is for a cyst to develop in the corpus luteum or in the hæmatoma, and then for the common septum to give way. Under the microscope I have placed a section showing the fusion of a small dermoid cyst and luteum cyst. On one side of the conjoined cysts the squamous epithelium and the sebaceous glands of the dermoid stop short and are succeeded by lutein tissue. Finally, with excess of lutein tissue such as is met with in association with vesicular mole and chorio-epithelioma cystic spaces develop in the lutein tissue just as has been already described under the heading of Retrogressive Changes in a Corpus Lutein.

Before leaving the question of lutein cysts it is necessary to consider their clinical significance. Whilst many of these cysts have no importance whatever from the clinical aspect, yet under certain unknown conditions they

can develop rapidly by a process of multiple cyst formation, and in this way form tumours of very considerable size, not infrequently being as large as a fœtal head. These large composite cystic tumours have the following structure. There is a core, more or less centrally situated, consisting of œdematous ovarian stroma. Surrounding this there is a peripheral zone made up of unilocular lutein cysts. The latter are divided by strands of ovarian tissue, of variable thickness, which radiate outwards from the central core to the periphery.

As the individual cysts enlarge and approximate each other, the intervening ovarian stroma is compressed even to total disappearance, and the cysts lie in contact and share a common wall of fibrous tissue, lined on each side by lutein cells. The cysts vary in size from the dimensions of a pea to that of a tangerine orange. They are never septate nor multilocular. The structure of the walls varies. Even in the thinnest there may be a thin lining of fibrous tissue between the lutein cells and the cavity of the cyst, but usually the lutein cells form the innermost lining. A fibrinous lining is not uncommon even in cysts of considerable size, and perfect columnar or spherical epithelium may remain in some of the largest cavities. The cyst contents consist of a clear, highly albuminous, pale-straw-coloured fluid, which coagulates spontaneously, and which hardens to a firm jelly in Kaiserling-Pick's solution. Externally these cysts present in the aggregate a very irregular appearance, resembling, in the words of Mrs. Scharlieb, "bubbles about to burst." Such cysts may cause trouble by torsion of their pedicle, or from their size and situation they have been known to obstruct labour at term, and even the delivery of a hydatidiform mole, necessitating Cæsarean section. They are a common accompaniment of vesicular mole and chorio-epithelioma. This is a point of clinical interest on which I would lay especial stress.

Lutein abscess.—It has been suggested by some German observers that corpora lutea become infected after rupture

by gonococci, which enter at the point of rupture and find in the blood-clot a suitable nidus for development. This point, it seems to me, must remain but a fascinating speculation, inasmuch as it is a well-ascertained fact that gonococci cannot be found in a collection of pus of any considerable size. My personal experience with respect to lutein abscesses is confined to four examples, two in my own hospital practice, one obtained from Mr. Doran, and one kindly lent me by Dr. Macnaughton-Jones. Of these, two have already received mention in my paper on "Lutein Cysts," published in the 'Journal of Obstetrics and Gynæcology' (January-February, 1905). Another has been published in connection with the article "Uterus Septus," by Mr. Doran and myself in the same journal (March, 1905). The fourth case is still unpublished. In this instance the pus was examined by Dr. G. L. Eastes, who reported the presence of streptococci, staphylococci, and a coliform bacillus, but gonococci were absent. Dr. G. L. Eastes also examined the pus in Dr. Macnaughton-Jones' case, with a negative result as far as gonococci are concerned. In my first case and in Mr. Doran's specimen the pus was not examined for micro-organisms. I would suggest another origin for lutein abscesses apart from the explanation offered by German authorities. I refer to the lutein hæmatoma. The fate of a lutein hæmatoma varies. It does not always undergo organisation and fibrosis. Already I have pointed out that it may be the source of a non-epithelial lutein cyst; but this is not all, for in one of the specimens I am showing to-night there is a lutein cyst whose contents consisted of a thick glistening mustard-coloured material which, on microscopical examination, proved to be altered blood containing crystals of cholesterin. This cyst is, in fact, an hæmatoma in which the blood-clot is undergoing degenerative or retrograde changes, which may reasonably be regarded as favouring pus-formation. I submit, therefore, that a lutein hæmatoma may legitimately be regarded as a precursor to a lutein abscess, and I am strengthened in this belief by find-

ing in Mr. Doran's specimen and in one of my own, not only pus, but also old blood-clot full of cholesterin not unlike the material I found in my own case above referred to.

In my experience lutein abscesses run a very chronic course; they are not a source of constant high temperature; they are invariably preceded by chronic tubal inflammation; their walls are very thick and densely adherent to all the neighbouring structures. Their lining is most characteristic. On naked-eye examination it presents a tuberculated frog-spawn-like appearance, and the predominant colour of the surface is yellow ochre. There are patches of ochreous staining here and there which lend support to the belief that the lutein tissue was originally overlain by blood-clot, the abscess being, in fact, a suppurating lutein hæmatoma. Microscopically the tufts or tubercles which are found on the wall of a lutein abscess consist of masses of lutein cells, with or without an admixture of granulation tissue. In places the lutein cell may be covered by fibrous tissue resulting from the organisation of the original blood-clot prior to suppuration of its central part.

So far we have seen that a lutein hæmatoma may (1) become organised and undergo final absorption of its fibrous tissue, or (2) it may give rise to a non-epithelial lutein cyst; or (3) it may suppurate and form a lutein abscess. Finally (4) it may calcify.

Calcification of lutein tissue.—I have once met with this condition, and have already published the case in the 'Journal of Obstetrics and Gynæcology' (January, 1905). The specimen was obtained at the autopsy of a woman, aged 54. The right ovary was reduced to a thin fibrous capsule from which the corrugated calcareous yellow body was easily shelled out. Its features will be best appreciated by reference to the illustration and its microscopical characters are shown in fig. 30 of the 'Journal of Obstetrics and Gynæcology of the British Empire,' January and February, 1905. On naked-eye section the calcareous tissue was found to be nothing

more than a thin, densely hard shell, within which lay a shrunken blood-clot. The shell, after being decalcified, was found to present a loose membrane containing lutein cells; outside this lay a broad band of decalcified tissue containing spaces filled by a loose reticulum in which lay lutein cells. The calcified bars spread beyond the lutein zone into the theca interna. Now, this is the situation where new vessels are found, and free hæmorrhage takes place during the final stages of maturation, and also at the time of rupture of a ripe corpus luteum. The calcareous deposit is therefore laid down precisely where extravasation of blood is so frequently detected. There has been calcification of the peripheral blood-clot and of the lutein lamina around either a ripe ruptured or unruptured follicle, or, what is more probable, around a lutein hæmatoma (spurious corpus luteum).

The features of this "ovarian stone" are so distinct that a similar condition would be easily recognised at once. The only other structure at all resembling it is the small calcareous dermoid, but the resemblance is very superficial, as a comparison of the two specimens I am handing round will prove. The dermoid shell is multilocular; one loculus is full of hair. There is no blood-clot within the calcified capsule, and its external surface shows no trace of yellow corrugations; and further, it could not be shelled out of a bed of ovarian tissue, as was the case with the calcareous hæmatoma. Literature supplies but a scanty record of these bodies. In English papers I can find but one instance of ovarian concretion at all resembling the specimen I am showing to-night. It was published by Hector W. G. Mackenzie in the 'Path. Soc. Trans.,' London, vol. xl, p. 198, and is quoted in Bland-Sutton's book on surgical diseases of the ovary. The ovaries were enlarged (but no mention is made of their being adherent) and presented smooth-walled cavities in which lay a number of black, hard, flat bodies. The concretions varied in size from the dimensions of a coriander seed to that of a small bean. They were

flattened from contact, and could be cut with a knife like hard wax. Microscopically they exhibited *no structure*, but there were *indications* that they contained spheroidal bodies. They gave the spectrum of acid hæmatin and the guaiacum reaction for blood. As Bland-Sutton says, these concretions probably consisted of coagulated blood-proteids akin to lardacein, and were of the same family as the concretions of the prostate, and the amyloid bodies sometimes found are old hæmorrhages. It is clear therefore that these structures in no way resemble the definitely calcareous lutein body figured in my sketch. The case which most closely resembles my own is that recorded by Orthmann. It is one of double pyosalpinx, in which there was a right-sided corpus lutein abscess and also two concretions in the left ovary, the one having the size of a pea, the other that of a hazel-nut. These concretions contained a folded hyaline layer like a lutein lamina, and after decalcification the latter tissue was proved to be present. In my case, as in Orthmann's, there was double pyosalpinx and a lutein abscess, the difference being that in mine the abscess was left-sided and the calcareous body belonged to the right ovary.

In the 'American Journal of Obstetrics,' 1903, Carl Wagner records a case of "ovarian stones." Two ovaries were shown with large cavities each containing pus and black stones the size of small walnuts. The patient was aged 57; she had never been pregnant. On examination a hard mass was found reaching halfway to the umbilicus and extending downward on both sides towards the ovarian regions. The mass was also found, on vaginal examination, to reach the pouch of Douglas and to encircle the rectum. The diagnosis of old ovarian abscess with parametric exudation was made. The diseased parts were removed by laparotomy. The ovaries were imbedded in large exudations, they contained "black stones and pus," and were undoubtedly old indurated hæmatomata. The patient was recovering in hospital at the time of publication. As no microscopical investigation is recorded, it is impossible

to be sure that lutein tissue shared in the structure of these "stones." The account reads as if they more closely resembled Dr. Hector Mackenzie's case than my own. It is a pity that the case is not more fully described. Slavianski mentions the case of a woman, aged 71, in whom the right ovary, covered with a pseudo-membrane, contained a concretion of the size of a hazel-nut; this easily shelled out, and, after decalcification, gave the impression of being a degenerated corpus lutein.

Orthmann mentions Rokitansky as having recorded a case of calcareous corpus luteum. The above are the only cases at all resembling my own which I can find in current literature. The only two undoubted cases of calcification of lutein tissue are, therefore, Orthmann's and my own, and no observer has hitherto supplied a drawing of the naked-eye and microscopical characters of this condition.

Solid Growths of Lutein Origin.

I have never met with a solid growth which could be proved to arise from lutein cells. It is claimed by Patenko (quoted by Bland-Sutton) that corpora fibrosa may attain the size of a hen's egg, and on the authority of Bland-Sutton these fibrous bodies are sometimes pedunculated. I have removed a diseased ovary to which was suspended a pedunculated hard body of the size of a small walnut; this proved microscopically to be a dense fibroma, and I have found sessile fibromata projecting partly into the stroma and partly beyond the surface of the ovary, but in neither case was there any lutein tissue present. If such bodies do arise from corpora albicantia, they must do so after the peripheral granulations have destroyed the lutein lamina, when it is quite possible for the granulations to form a sort of keloid scar instead of subsiding as they ought. The case recorded by Malcolm Campbell in the March number of the 'Journal of Obstetrics and Gynæcology' has a bearing on this point. It is not improbable that the "fibroid excrescence" which he figures is a keloid

developed, as above suggested, from excessive granulomatous reaction developed during the retrogression of a corpus luteum. One sympathises with Campbell in his difficulty in determining, in any given case, whether such a body is simply organised granulation tissue or a true neoplasm, especially where the latter condition obtains on the opposite side; but when in doubt excision of an isolated excrescence would seem to be the wisest course to adopt. Rokitansky describes two types of new growth as arising from the corpus luteum, the one a benign fibroma and the other a carcinoma. It is obvious that neither of these can arise from lutein tissue. Voigt describes a malignant ovarian tumour of the size of a man's head as taking its origin in a corpus luteum. The true nature of this tumour and also the one recorded by Growzdew, is open to grave doubt, whilst that described by Schaller and Pforringer is clearly an example of composite lutein cysts, and does not fall into the category of *solid* lutein tumours. I cannot, in short, satisfy myself that any solid lutein new growth has ever been discovered.

Excess and Displacement of Lutein Tissue.

Excess of lutein tissue and the distribution of compact islands of such tissue throughout the ovarian stroma may be present in glands which, to the naked eye, may pardonably be described as normal. I have met with one notable example of such excess and displacement of lutein tissue. It occurred in the case of chorio-epithelioma which I showed at this Society (June, 1903). Both ovaries appeared normal and were described as such by Dr. Hobhouse, of Brighton, who made the autopsy, but on examination I found they contained, in addition to a large number of epithelial-lined lutein cysts, a vast amount of discrete and compact lutein cells throughout the stroma. In the same way I found in Dr. Williamson's case that the ovarian stroma was strewn with lutein cells, in amount sufficient to constitute excess even had there been no large

lutein cysts present. Such displacement and excess of lutein tissue, so far as my investigations go, is confined to cases of vesicular mole and chorio-epithelioma. The question naturally arises, How do these cells become so universally distributed? Have they any malignant propensity giving them the inherent faculty of invasion? I can find no evidence to show that they have. In my opinion their distribution is due to a passive displacement. They are only formed in the deeper layers of the theca interna, whence they get dislodged, firstly, by cleavage of the lutein layer by effusion of blood, and secondly, by the invasion of the lutein layer by fibroblasts and the subsequent laying down of fibrous tissue. The centrifugal regeneration of ovarian stroma which has its origin around each retrograde corpus luteum scatters these cells radially towards the periphery of the gland, where they aggregate in large numbers, lying as bands beneath the tunica albuginea, which may be rendered convex by the clusters of cells immediately beneath it.

The Relationship between Excess of Lutein Tissue and Trophoblastic Overgrowth.

Whilst lutein cysts and lutein hæmatomata are to be commonly found in inflamed ovaries of nulliparous women, the large composite lutein cystomata of grape-like character have never been discovered apart from vesicular mole and chorio-epithelioma. Runge, in reviewing the histories of 144 cases of chorio-epithelioma following vesicular mole, found that in 81 no mention was made of the state of the ovaries, 11 had no naked-eye abnormalities, in 28 there was slight cystic degeneration, but in 24 *there was more or less extensive cystic disease.* In another series of 28 cases, which concerned only vesicular moles—not chorio-epithelioma—16 ovaries were described as "normal"; *in* 12 *there was cystic degeneration.*

The point of importance is the amount of lutein tissue present, and not the presence of the cysts. Given large

cysts lined by lutein tissue, there must be a preponderance of lutein material; but, as one of my cases shows, the ovaries may appear normal and yet the lutein tissue be in excess. Pick and Jaffé agree that in all cases of vesicular mole excess of lutein tissue will be found in the ovaries; and the former authority asserts that the proliferation of the chorionic epithelium, which is the one important feature in vesicular mole, is due to the over-production of an internal ovarian secretion manufactured by the plus quantity of lutein tissue. To use Pick's own expression, the excess of lutein tissue sets up a "chorio-epitheliomatous reaction" in the trophoblast of the imbedded ovum. With regard to what is known about this internal lutein secretion Fraenkel's conclusions are that:

(1) The corpus luteum is a gland with an internal secretion capable of being always formed afresh in the (functional) ovary.

(2) The corpus luteum carries cyclic nutritive impulses to the uterus, especially affecting the endometrium, in the connective tissues of which it excites extreme hyperæmia and hyperplasia.

(3) *It affects the adhesion of the impregnated ovum*, or when failing to do so, excites menstrual secretion.

Conclusion 3 has led Fraenkel to advise the postponement of ovariotomy in pregnancy until the seventh or eighth week, but Essen-Möller removed both ovaries during the first month of pregnancy and yet the gestation went to term. This appears a blow to Fraenkel's theory, but it may be an exception to the rule; in any case one isolated example of the continuance of gestation being independent of the corpus luteum cannot upset the results of the vast number of experiments upon which Fraenkel has based his conclusions. Fraenkel is convinced that in vesicular mole the disease of the ovum is secondary to disease of the ovary, and in quoting the case of Malcolm, Bell, and Lockyer he puts this construction upon it. He has in addition tested therapeutically the action of lutein tissue upon pregnancy. In threatened abortion the active

growth of the trophoblast may be considered as on the wane; Fraenkel gives "lutein tabletten" to excite it, and with encouraging results. He has also carried the question of the uses of lutein cells into the region of bio-chemistry and has prepared an anti-lutein substance by which he suggests that sterilisation (prevention of trophoblastic growth) may be brought about by bio-chemical means.

Belief in the dependence of early gestation on a proper supply of lutein secretion is firmly established on the Continent; and if the effect of a stimulus is to be measured by the intensity of that stimulus, it is quite logical to expect that, given a plus quantity of lutein tissue, the result will be trophoblastic overgrowth. This is only to be proved by the investigation of a large number of cases, together with control researches on ovaries in cases of normal gestation. The sum of my own limited experience teaches me that there is more lutein tissue present in cases of vesicular mole and chorio-epithelioma—either in the shape of lutein cysts or displaced lutein tissue, or both—than in any other associated condition.

An appendix to this paper, with illustrations, has already appeared in the 'Journal of Obstetrics and Gynæcology of the British Empire' for February, 1905. It includes the description of the four pairs of compound lutein cystoma referred to in the abstract on page 158.

In the above Journal (January–February, 1905) will be found the drawings and plates which illustrate all the special points mentioned in this paper.

The PRESIDENT, after thanking Dr. Cuthbert Lockyer for his interesting demonstration, remarked on the possible connection between the persistence of groups of lutein cells which had degenerated into fibrous tissue and the occurrence of lutein cysts in women long past the menopause.

Dr. WILLIAMSON congratulated Dr. Lockyer upon the able and scientific paper which he had presented to the Society. He stated that during the last two years he had devoted a considerable amount of attention to the study of the normal corpus luteum, and his own observations agreed in all essential points

with those recorded by Dr. Lockyer. He was firmly convinced of the truth of two observations: (1) that the cells of the theca interna were modified stroma cells, and (2) that the lutein cells had their origin in the cells of the theca, and not in the granulosa cells; they were therefore connective tissue and not epithelial in their nature. There was, however, another structure very evident in the fully developed corpus luteum upon which, in his opinion, Dr. Lockyer had not laid sufficient stress. This was the membrana propria visible in the mature but unruptured follicle as a thin, structureless membrane separating the membrana granulosa from the theca interna. The origin and nature of this membrane was ably investigated some eight years ago by Clark of the Johns Hopkins University. Clark treated thin sections of the corpus luteum with digestive fluids and found that whilst the lutein cells were rapidly disintegrated and disappeared, the stroma in which they were imbedded was highly resistant; in sections thus treated it can be clearly demonstrated that processes pass from the cells of the theca externa, run between the cells of the theca interna, then, spreading out conformably to the surface, constitute the membrana propria. When the corpus luteum is formed the membrana propria becomes greatly thickened and forms a band of almost structureless fibrinous-looking material internal to the lutein cells. Dr. Williamson regarded this membrane as of considerable importance, for he believed that it was this structure which formed the fibrinous lining which had been figured and described by Dr. Lockyer as occurring in several of his cysts. Dr. Williamson had met with precisely similar specimens and had convinced himself that the fibrinous lining was not a mere deposit of fibrin from the central blood-clot, but was a greatly hypertrophied membrana propria. Dr. Williamson could not entirely agree with Dr. Lockyer's views as to the dissemination of lutein tissue. He had often, in ovaries which he believed to be perfectly normal, found lutein cells scattered through the stroma at a considerable distance from any recently ruptured follicle. Dr. Lockyer agreed with him that the lutein cell was merely a modified stroma cell; was it not much more probable, therefore, that these cells arose (by modification of stroma cells) in the situation in which they were found, rather than that they had migrated from a distant corpus luteum? A point of importance upon which Dr. Lockyer had rightly laid great stress was the brief life of the lutein cell. Whatever its function might be, it was not to reconstitute the ovarian stroma; in that process it took no part whatever. Born and Fränkel's theory was an interesting and fascinating one and opened up an entirely new field of investigation, but the proof was not yet complete, and it was necessary to wait for more facts; Dr. Williamson believed, however, that with riper knowledge some such function for the corpus luteum would be firmly

established. In conclusion Dr. Williamson would like to ask if Dr. Lockyer had included the pigment lutein in his researches. At first he had regarded it as a derivative of hæmoglobin; that was not so, however, for the pigment was a lipochrome, a member of a class widely distributed through both the animal and vegetable kingdoms. To members of this group were due the colouring matter of blood-serum, of the yolk of egg, and of vegetables such as the carrot. These bodies give one or two absorption bands at the violet end of the spectrum and form a blue solution when the solid pigments are treated with sulphuric or nitric acid. What is the meaning of the development of such a pigment? What part does it play in the functions of ovary? How is it formed? These were questions to which he could offer no solution, and he would like to know if Dr. Lockyer had arrived at any conclusion upon these points.

Dr. Blacker thought that the Fellows of the Society were greatly indebted to Dr. Cuthbert Lockyer for his most excellent paper, and for the very beautiful demonstration which he had given them. The work had been carried out with the thoroughness so characteristic of its author, and would form an important scientific addition to the 'Transactions.' At the present time it might well be said that the corpus luteum was the fashion; at any rate, a very large amount of literature had been devoted to its development, retrogression, and possible functions during the last few years. He thought, however, that it behoved them not to allow themselves, as the votaries of fashion so often were, to be carried to extravagant lengths in their views about a body which but a short time ago was considered to be a comparatively insignificant structure. That an excess and dissemination of lutein tissue such as that described by Dr. Lockyer was present in many cases of vesicular mole and cases of chorion-epithelioma was quite certain. Patellani ('Centralb. f. Gynäk.,' November 13th, 1905) had collected 84 such cases. Of this number 44 were cases of vesicular mole, 18 were cases in which a chorion-epithelioma had followed a vesicular mole, and 22 were cases of chorion-epithelioma following normal pregnancy or abortion. These figures showed incontestably that the two conditions often existed together, but the question as to the relationship they bore to one another could not be settled so easily. To demonstrate that the excess of lutein tissue was dependent on the presence of the mole, or *vice versa*, would require the examination of a very large number of ovaries from cases of normal pregnancy, and from conditions, such as fibroid tumours, which produced congestion and other vascular changes in these organs. Observers were by no means agreed as to the interpretation to be placed on the presence of this excess of lutein tissue. Seitz and Wallart ('Centralb. f. Gynäk.,' Nos. 9 and 13, 1905), for example, maintain that it is

present in all cases of normal pregnancy, and is actually due to the existence of the pregnancy. The former (in 36 cases in all) has examined the ovaries from all stages of pregnancy from the second to the end of the tenth month, and has found, with only one exception, that in these ovaries a hyperplasia of the lutein tissue is present. This observer holds that these lutein cells are developed from maturing Graafian follicles, which are present in great numbers in pregnancy. As the result of changes in the stroma of the ovary produced by œdema, these follicles lose their resemblance to such structures and on microscopic examination may appear as mere collections of lutein cells scattered through the stroma of the ovary. Whether this view as to their origin is correct or not, it at any rate appears to receive some confirmation from the fact demonstrated by Dr. Lockyer that such collections of cells are especially numerous at the periphery of the ovary, precisely that portion of the organ in which such maturing follicles are usually met with.

If further observations showed that such an extent of lutein tissue is present in all cases of pregnancy, then the contention that the corpus luteum or luteum tissue has anything to do with the production of either a vesicular mole or a chorion-epithelioma could no longer be maintained. The matter was one of the greatest possible interest, but Dr. Blacker thought that a very large amount of evidence must be brought forward before such views as those enunciated by Fraenkel as to the functions of the corpus luteum could be accepted. He wished to ask Dr. Lockyer whether he had carried out any control observations on the ovaries in cases of pregnancy or other conditions producing circulatory disturbances in these organs, and, if so, what changes in the corpus luteum he had found.

In thanking the President and Fellows of the Society for the kind attention they had paid to his demonstration, Dr. Lockyer wished especially to express his appreciation of the kindly criticisms of Drs. Williamson and Blacker. Dr. Lockyer agreed with Dr. Williamson in thinking that the membrana propria formed the fibrous lining of some lutein cysts, but held the view that many of the fibrinous and fibrous-lined cysts were derived from hæmatomata. He had not worked at the chemistry of lutein substance, and hence was not in a position to speak on the actual nature of the yellow pigment. In reply to Dr. Blacker, Dr. Lockyer said he was conversant with the statistics which he (Dr. Blacker) brought forward. He had made many investigations on the microscopical character of ovaries in cases of ectopic gestation and fibromyoma uteri, but, as stated in his paper, he had never found an excess of lutein tissue in the degree in which that substance is present in chorio-epithelioma and vesicular mole. Moreover, Dr. Lockyer had examined many ovarian cysts, which were associated with normal pregnancy, but

such were never lutein cysts, nor was lutein tissue, except in minutest traces, to be found in them. With regard to a true excess of lutein tissue being found in normal pregnancy, Dr. Lockyer wished to reserve his opinion on those researches of Seitz and Wallart which bore on this subject.

MAY 3RD, 1905.

W. R. DAKIN, M.D., President, in the Chair.

Present—42 Fellows and 5 visitors.

Books were presented by the Society of the New York Hospital, the Boston (U.S.A.) Lying-in Hospital Staff, Dr. Glover, and Dr. Cullingworth.

Arthur W. Fuller, M.D.Edin., Alexander B. Leakey, M.B., B.Ch.Edin., and Edith Serjeant, L.R.C.S.&P.Edin. & Glasg., were admitted Fellows of the Society.

Rachel Cohen, M.B.Calc., F.R.C.S.I.; Victor Evelyn Collins, M.B.Lond.; St. Leger Hugh Gribben, M.D.Edin.; Charles John Nepean Longridge, M.D.Vict., F.R.C.S.Eng.; Francis Lionel Provis, F.R.C.S.Edin., L.R.C.P.Lond.; and Alfred Thomas Masters, L.S.A. were elected Fellows of the Society.

REPEATED TUBAL PREGNANCY; ABDOMINAL SECTION ON EACH OCCASION.

By C. E. PURSLOW, M.D., M.R.C.P.

CASES of repeated extra-uterine gestation in which the diagnosis has been confirmed on each occasion by abdominal section are by no means common.

Dr. Haig Ferguson, in the 'Edinburgh Medical Journal'

for 1899, records a case, and states that up to that time only fourteen similar cases had been recorded; he gives the name of the operator in each.

A case is recorded by Dr. Lewers in the 'Obstetrical Transactions' for 1900.

Two cases are recorded by Reiffersheid in the 'Centralblat für Gynäkologie,' and are quoted in the Epitome of the 'British Medical Journal,' July 4th, 1903.

One case is recorded by Dr. Rumley Dawson in the 'Journal of Obstetrics and Gynæcology,' September 8, 1903.

These are all the cases that I have been able to discover of repeated extra-uterine pregnancy in which two operations were performed, although the total number of cases of repeated extra-uterine pregnancy which have been reported up to the present is considerably over 100. In some an old and a recent pregnancy were found at the same operation; in others the diagnosis on one or both occasions was made from clinical signs; and in others the diagnosis on the second occasion was made from *post-mortem* examination.

The following are brief notes of my case:

The patient was seen on January 15th, 1903, with Dr. C. J. B. Johnson, of King's Heath, and gave the following history:

Age, 27; married seven years, one child six years ago. Menstruation began at 16, and except during pregnancy had been regular. The last period began on November 17th; the one due in December was missed, and patient thought herself pregnant; there was some swelling of the breasts but no morning sickness.

About the end of December she had an attack of pain in the right lower abdomen; this came on suddenly and in a few hours got better again; after this the pains recurred almost every day, and there was vomiting at times when the pain was severe.

There had been difficulty in micturition for a few days; there had been no vaginal discharge.

On bimanual examination an ill-defined swelling could

be felt on the right side of the uterus, and the latter organ appeared to be enlarged.

A diagnosis of ruptured tubal gestation was made, and the patient was admitted to the Queen's Hospital on January 16th.

A clot of blood was passed *per vaginam* on the 17th, but as there was now no pain and the patient's general condition was good, the case was thought to be a suitable one for expectant treatment; on the 21st, however, signs of fresh hæmorrhage appeared and I then operated without delay, the abdomen being opened in the middle line.

A considerable amount of recent blood, together with some old blood-clot, was found and removed; the right tube was tied off by interlocking silk ligatures and cut away.

The abdomen was closed without flushing or drainage. The wound healed by first intention and the patient left the hospital on February 11th.

The tube was found to be distended in its outer portion and its cavity filled with blood-clot. The fimbriated extremity was open, and blood had escaped from it. No fœtus was seen.

Second attack.—The patient was quite well after leaving hospital and menstruated regularly until May, 1904; on the 18th of that month the period was a fortnight overdue, when she was seized with sudden severe pain on the left side of the abdomen and nearly fainted.

A vaginal discharge of blood also came on; she went to bed and sent for Dr. Johnson, and he diagnosed a recurrence of the previous condition and asked me to see her.

I found the physical signs much the same as on the previous occasion, this time on the left side, and she was admitted to the hospital and I again operated.

An incision was made one inch to the left of the previous cicatrix; about half a pint of coagulated blood was found in the peritoneal cavity. The distended left tube was drawn up into the wound, ligatured and removed, together with the ovary, which was adherent to it. Some omental adhesions to the old scar were ligatured and divided.

Patient made a satisfactory recovery, and is now, at the time of writing, in good health. The tube when examined after removal was found to be distended at its outer portion to about one inch in diameter. The fimbriated extremity was open and would admit the tip of the little finger.

Professor Taylor in his work on extra-uterine pregnancy points out that there is a certain similarity in the course of events on each occasion in these cases, and my case bears out this statement in a striking way. Each time there was intra-peritoneal hæmorrhage from the fimbriated extremity of the tube, after the patient had gone exactly a fortnight over the period.

The specimen on the first occasion was, unfortunately, not preserved, but that from the second operation I present here to-night.

In the 'British Medical Journal,' February 11th of this year, there is an account of a meeting of the Obstetrical Society of Vienna, at which another case of this kind was reported, Dr. Weinlechner stating that he had removed a tubal sac in a case where Professor Schauta had previously performed the same operation on the opposite side; and he raised the question of the advisability of removing the normal tube as a prophylactic measure when its fellow had to be amputated for tubal gestation.

An active discussion on this point took place, but the balance of opinion appeared to be against such a proceeding.

Mr. Alban Doran referred to a case in his own practice where a woman, aged 32, showed all the symptoms of tubal abortion on the right side. He kept her at rest and the characteristic swelling in the right fornix diminished in size. As she had symptoms of incipient phthisis no operation was performed. Just a year later he operated on the same patient for tubal gestation on the left side. He found evidence of former pregnancy in the right tube. The case would be made the subject of a short communication which he intended to read at a future meeting.

Dr. Herbert Spencer did not think that repeated tubal pregnancy was as rare as appeared in Dr. Purslow's communica-

tion. He had himself operated on three cases, although he did not usually operate in early tubal gestation. In two of the three cases he had operated once, in the other twice, removing the two moles in each case. He entirely disapproved of the suggestion quoted by Dr. Purslow that the other healthy tube should be removed at the same time as the pregnant tube. He had at present under his care two cases of intra-uterine pregnancy which followed tubal pregnancy. In the first of these the mole had been removed by operation. In the second it was found when the uterus was removed seven weeks ago by hysterectomy following Cæsarean suture on account of fibroids.

Dr. Cullingworth said that he did not understand Dr. Purslow to associate himself with the suggestion that in operations for tubal pregnancy the unaffected tube should, as a precautionary measure, also be removed. He thought there would, in that Society, be a general consensus of opinion in accordance with that expressed at the conclusion of the discussion at the German Congress to which Dr. Purslow had alluded, viz. that such a proceeding was altogether unjustifiable.

Dr. Purslow, in reply, said that he did not associate himself with the suggestion that the non-gravid tube should be removed as a prophylactic measure in cases of operation for tubal gestation; he had known at least two cases in which the birth of a full-term live child had taken place in women who had previously had the appendages of one side removed on account of extra-uterine pregnancy.

A CASE OF ACUTE GENERAL GONOCOCCIC PERITONITIS.

By Alexander G. R. Foulerton, F.R.C.S., D.P.H.Camb.,

LECTURER ON BACTERIOLOGY AND ON PUBLIC HEALTH TO THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

Whilst clinically peritonitis is a well-recognised complication of gonorrhœal infection in women, the opportunity for obtaining direct bacteriological proof of its occurrence is of some rarity. In fact, I am not aware of a single case hitherto published in this country in which the presence of *Micrococcus gonorrhœæ* in the peritoneal exudation has been actually demonstrated.

In a case of gonorrhœal pelvic peritonitis which was recorded by Mr. Bland-Sutton, in Vol. XLIII of the 'Transactions of the Obstetrical Society,' I was able to obtain *M. gonorrhœæ* in pure culture from the contents of the tubes which had been removed by operation, but had not the opportunity of examining the peritoneal exudation itself.

For this reason the following case, in which a pure culture of *M. gonorrhœæ* was obtained from the peritoneal exudation, is of particular interest; the onset of symptoms, also, was perhaps more acute than is generally associated with the clinical conception of gonococcic peritonitis.

F. B—, aged 19 years, an unmarried woman, was admitted into the Middlesex Hospital under the care of Dr. Pasteur on March 21st.

Condition of the patient on admission into hospital.—The patient complained of severe pain in the abdomen, and of extreme tenderness when examined. The abdominal muscles were immobilised, respiration being entirely thoracic. The temperature was 100·4° F., and the pulse-rate was 116.

History of illness previous to admission.—Patient completed a menstrual period last week. On May 19th she noticed some pain in the abdomen, but did not pay much attention to it. On the following morning the pain was more severe, but the patient was able to get up. During the afternoon diarrhœa and vomiting set in, and by the evening the pain in the abdomen had become extremely acute. On the next day the patient was brought to the hospital. It may be added that subsequently the patient denied any knowledge of having suffered from any sort of purulent discharge from the vagina.

Progress of the case.—It was decided that abdominal exploration was immediately necessary, and the patient was transferred to Mr. Andrew Clark's wards for surgical treatment.

The patient was anæsthetised, and before the operation was commenced it was ascertained that there was a free

purulent discharge from the vagina. An incision was made from the umbilicus onwards along the middle line, and pus at once welled up through the opening. On examination it was found that the peritoneal sac contained a considerable quantity of pus and that the peritoneal covering of the intestines was deeply injected. The appendix cæci was next examined and was found to be of healthy appearance. On drawing up the right tube for examination, it was found to be swollen, and pus was oozing out of the ostium abdominale; the left tube was also swollen, but there was no escape of pus from it.

The tubes and ovaries were then removed, the peritoneal sac was swabbed out with a 1 in 4000 solution of perchloride of mercury, and the operation wound was closed, except for an opening for a drainage-tube.

After the operation the temperature rose to 101·4° F., and did not become normal until some three weeks later; but otherwise the course of the case was quite satisfactory, and the patient left the hospital on April 20th.

Condition of the appendages.—Both ovaries appeared to be normal; the left one showed a recently-ruptured Graafian follicle. Both tubes were thickened, and contained greenish pus; the lumen was not obviously dilated. The right tube was sharply kinked at about its middle, being doubled on itself, so that a section through this point cut across the lumen of the tube twice. The ostium abdominale of the left tube was occluded by adhesion.

Bacteriological examination.—An examination was made of the vaginal discharge of the pus from each tube and of the peritoneal pus. On microscopical examination of the vaginal discharge colonies of cocci, which did not stain by Gram's method, were found in many of the pus-cells; no examination by culture was made.

Pus from each tube showed similar intra-cellular cocci, which did not stain by Gram's method, in considerable numbers. Culture-tubes of gelatin, nutrient agar, and pepton-broth were inoculated with pus from each of the tubes, and in every tube the medium inoculated remained

sterile on incubation. No culture media, however, which would have allowed the growth of *M. gonorrhœæ* were inoculated with pus from the tubes.

On microscopical examination of the peritoneal pus (specimen shown), a number of pus-cells were found, containing colonies of similar cocci. The pus also contained many larger mononuclear cells, apparently of endothelial origin, none of which appeared to contain cocci. No other bacteria were seen in the microscopical examination. Culture-tubes of gelatin, nutrient agar, and pepton-broth were inoculated with the pus and incubated—some aerobically, others anaerobically; all these remained sterile. Four nutrient agar tubes, with fresh human blood smeared over the surface, were also inoculated with the peritoneal pus; and in each of these four tubes pure cultures of *M. gonorrhœæ*, typical in every respect, were obtained after incubation for twenty-four hours at a temperature of 37° C.

Microscopical examination of sections made through the tubes.—The condition of the tubes showed that there had been considerable exudation into the sub-epithelial layer and into the circular muscle layers, the latter showing many localised aggregations of round cells. The mucoid folds were swollen, the change being slight towards the uterine end of the tube, and very conspicuous towards the ovarian end. The epithelium did not show as much alteration as might perhaps have been expected. In the half of the tube nearer to the uterus the epithelial cells showed little change, except that in some places the cell-protoplasm had a cloudy appearance when stained. Towards the ovarian end of each tube the mucous folds were denuded of epithelium in places. A careful examination of many sections failed to find any evidence of penetration of the cocci below the epithelium, nor was any marked invasion of the epithelial cells themselves by the cocci noted. In one or two instances a pair of cocci could be seen in the upper part of a columnar cell, but such were few and far between, and larger intra-cellular colonies were not found.

The comparative rarity of symptoms of peritonitis in women who are suffering from gonorrhœal infection, in comparison with the known frequency of gonococcic salpingitis, is probably due in the first instance to the natural tendency for a fluid in the tube to flow in the direction of the uterus, and afterwards, in many cases at any rate, to occlusion of the ostium abdominale by adhesion.

And it would seem probable that in this particular case the occurrence of peritonitis was due to the kinking of the right tube. This kinking would appear to have been caused by the sudden engorgement of the wall of the tube with inflammatory exudation, and was of such a nature that the lumen of the tube must have been completely closed to the passage of pus formed in the ovarian end of the tube towards the uterus; and so escape through the ostium abdominale occurred.

The removal of the appendages in this case was clearly justified. The right tube was closed by the kinking near its middle, and had it been left a tubal abscess would almost certainly have necessitated operative interference later on; the ostium abdominale of the left tube was completely sealed by adhesions, and so the tube had become useless as an oviduct, whilst remaining a potential source of future danger to the woman.

Dr. Cullingworth was glad the case had been brought forward. General peritonitis of gonorrhœal origin was not common. He could not agree with Mr. Foulerton as to the cause in this case being that a kink in the tube prevented the purulent exudation finding its way through the normal channel into the uterus. In the first place he did not regard the uterine end of the tube as the normal outlet for morbid secretions. In fact, he knew of no instance in which it had been proved that the tubal secretions in acute inflammation had passed out through the uterus, and the probabilities were all the other way, owing to the extreme fineness of the canal at that part and the ease with which a very little inflammatory swelling of the mucous membrane completely blocked it.

Mr. Foulerton, in reply, said that he had no doubt but that in this case the escape of pus from the right ostium abdominale was due to the occlusion of the tube by kinking. He did not

think that occlusion of the ostium abdominale by adhesion was the only safeguard against peritoneal infection in these cases; he thought that there was a natural tendency for pus to flow towards the uterus if the passage was free. He thought that the treatment adopted—removal of both tubes—was the only correct method. The right tube was occluded at about its middle, and if it had been left a tubal abscess would almost certainly have resulted; the ovarian end of the left tube was occluded by adhesion, and so the tube would have been useless as an oviduct, whilst otherwise it would have been a possible source of future danger to the patient.

RUPTURED OVARIAN CYST WITH TWISTED PEDICLE.

Shown by Dr. Victor Bonney.

The twisted ovarian cyst was removed from a patient, aged 49. Great hæmorrhage had occurred into the cyst, the wall of which had then ruptured, with consequent hæmoperitonæum. He pointed out the rarity of such cases and the possibility of them being mistaken for ruptured extra-uterine gestation.

Mr. Alban Doran referred to a case ('Brit. Med. Journal,' vol. ii, p. 75) where he diagnosed chronic torsion of an ovarian cyst. When passing a motion, on the day before operation, the patient was seized with very severe abdominal pains. He operated and found a big purple mass which put him in mind of Dr. Bonney's specimen. It was a dermoid cyst of the right ovary in a state of acute torsion; the veins were extremely engorged and there was a hæmatoma in the broad ligament; the tumour was clearly about to rupture. There was also a dermoid cyst of the left ovary in a state of chronic torsion. Both tumours were removed without difficulty, and recovery was rapid. The right cyst might well have burst had axial rotation occurred under less favourable circumstances. The right tumour in this case is preserved in the Museum of the Royal College of Surgeons; it was exhibited at a meeting of the Society ('Obstet. Soc. Trans.,' vol. xliii, p. 12).

UTERUS REMOVED FOR (?) MALIGNANT OVERGROWTH OF THE ENDOMETRIUM.

Shown by Dr. Victor Bonney.

The uterus was removed by vaginal hysterectomy for diffuse adenomatous overgrowth of the endometrium which had become, or was becoming, malignant. A history of profuse sero-sanguineous discharge had extended over four and a half years.

Dr. Amand Routh considered that any glandular growth in the body of the uterus, starting after the menopause, was malignant in character and should be treated as such. In a patient aged 63, such as the one under discussion, this conclusion was practically certain. He instanced a case (reported in 'Obstet. Soc. Trans.,' vol. xxxix, p. 5) of a woman, aged 57, whose uterus was curetted three times for recurrent villous growths, reported to be innocent papillomata growths on microscopical examination. As the hæmorrhage again recurred he removed the uterus, and the apparently benign papillomata were found to have infiltrated the uterine muscle almost to the peritoneal investment of the organ.

Mr. Corrie Keep said, in reference to Dr. Victor Bonney's specimen of doubtful malignant disease of the uterus, that in consequence of both the macroscopic specimen and the microscopic section taken from it showing distinct invasion of the muscular coat of the uterus by glandular tubules from the endometrium, the case was without the slightest doubt one of malignancy, and should be classified as a glandular carcinoma.

CARCINOMA OF THE CORPUS UTERI INVADING A MYOMA: HYSTERECTOMY.

Shown by Dr. J. M. Munro Kerr.

The patient from whom this specimen was removed by abdominal hysterectomy came under my care nearly a year ago. She was an unmarried lady of about 48, and

was seen by me with her doctor on account of an abdominal swelling and excessive menstrual discharge. These symptoms had been present some years, and on more than one occasion she had seen one of our leading gynæcologists three years before. He then advised temporising and waiting for the menopause. As, however, the bleeding became more severe, and considerable pain developed in the tumour, I was asked to see her. I advised removal of the growth. Owing to domestic arrangements the operation was delayed. During that time, with tonic treatment, the patient's general condition improved slightly, although the other symptoms remained practically the same.

Early in October she went into a Nursing Home, and I removed the tumour which I show you to-night. On opening the abdomen I found the whole omentum studded with numerous secondary deposits, and the upper part of the growth, which had burst through its capsule, intimately adherent to loops of bowel, mesentery, and ascending colon. These adhesions were separated and the uterus removed by supra-vaginal amputation, for I considered it profitless, seeing that there was general infection of the abdomen, to perform a total extirpation. I removed also the whole omentum, but it was quite impossible to remove the affected portions of bowel. The patient made an uninterrupted recovery, and left the Nursing Home four and a half weeks after the operation. She did not, however, remain well for long, for four weeks or so later she began to develop symptoms of "obstruction of the bowels," which symptoms became more pronounced. She died three weeks later.

The case is of special interest because the growth is evidently a carcinoma which has extended from the body of the uterus and has invaded the myomatous growth. It is not a case of degeneration of the growth: it is an invasion of it by a new and independent neoplasm. The point of special interest naturally is how far the presence of a myoma predisposes to the development of such a

growth. In this connection the experience of Haultain is of interest. He found in his series of 120 abdominal hysterectomies for fibromyoma five cases of adeno-carcinoma of the body of the uterus. It is perfectly apparent that originally the tumour this patient suffered from was a myoma, for it is hardly conceivable that she could have had a large malignant growth for four years.

Dr. Teacher's Report on Tumour of Myomatous Uterus, of date October 14th, 1904.

This appears to be an encephaloid carcinoma, and from its position and the character of the cells composing it, the natural conclusion is that it has originated from the glands of the corpus uteri, although there is no trace of a glandular structure.

It is composed for the most part of large masses of cells of very varying character imbedded in the remains of the uterine tissues. The cells have for the most part clear cell bodies and single relatively large vesicular nuclei, and are packed together in masses which are characteristically epithelial. There are also many large multi-nucleated cells.

The most typically carcinomatous structure is seen where the growth is passing from the uterus into the adherent loops of intestine. In this region the growing edge consists of fine processes of polygonal cells infiltrating connective tissue. Where uterine muscle or myoma is being invaded, the tumour consists of large masses of cells apparently growing in the perivascular lymphatics and perivascular areolar tissue. The blood-vessels frequently remain in the centre of the process as a space filled with thrombus (Section A).

When the uterine mucous membrane is being invaded the tumour tissue composes nearly the whole of the section ; only a few strands of connective tissue remain to give it a suggestion of an alveolar arrangement. Parts of it, for this reason, resemble alveolar sarcoma ; and certain parts

in which the cells are greatly swollen up resemble nothing so much as corpus luteum.

It has the look of a rapidly growing and excessively malignant tumour.

CARCINOMA OF THE CERVIX COMPLICATING LABOUR AT TERM; CÆSAREAN SECTION, FOLLOWED BY VAGINAL HYSTERECTOMY.

Shown by Dr. J. M. Munro Kerr.

Mrs. G—, ix-para, was admitted to the Glasgow Maternity Hospital under my care on December 20th, 1904. She had been seen by her doctor, who, recognising the serious nature of the case, sent her to hospital. On admission she stated that she had had pains for nearly two days, and irregular discharges of blood *per vaginam*. A tumour of about the size of a tangerine orange could be felt blocking up the os, which was dilated and admitted two fingers. The membranes were unruptured, and the child was alive. The tumour bled readily, although not profusely, on pressure, and was considered to be a carcinoma of the cervix.

The patient was immediately prepared for abdominal section and the vagina was carefully washed out. The abdomen was then opened and the child extracted from the uterus through a fundal incision. The ovarian and uterine arteries on both sides were then ligatured and the whole connections of the uterus severed from above. I then removed the tumour through the vagina, separating the connections with the bladder and lateral and posterior vaults. Two small vessels on each side of the vagina had to be tied. In dragging the uterus out it became very much elongated, but there was no difficulty whatever in removing it. Some loose packing was then placed in the vagina. The tumour proved to be a carcinoma of the cervix, and a specimen of the growth I show you under the microscope. The patient's recovery was rather pro-

tracted; for although the puerperium ran a normal course for fourteen days, there then developed a sudden rise of temperature and symptoms of phlegmasia of the left leg. Both legs became affected, and she had to remain in hospital for some seven or eight weeks. When she left, however, her condition was thoroughly satisfactory.

This case illustrates the ease with which a full-time uterus may be removed *per vaginam*. The treatment adopted appears to me the soundest method of treating such cases, for if it is admitted that the whole uterus should be removed in carcinoma of the cervix in the non-pregnant—and I think this is the view of all gynæcologists—it is surely right also to remove the whole uterus for such a condition during labour and pregnancy when that is possible.

In reply to a personal appeal for criticism on the specimen, Dr. Herbert Spencer said Dr. Munro Kerr was quite mistaken in stating that he did not know anyone who amputated the cervix of the non-pregnant uterus. He (Dr. Spencer) still did the operation in certain cases of early cancer of the portio. In such cases, performed with the galvanocautery, it gave, he believed, better results both from the points of view of mortality and cure than any other operation. As Dr. Munro Kerr had alluded to his paper on cancer complicating labour in advanced pregnancy ('Obst. Soc. Trans.,' xlvi, p. 355) he would remind Dr. Kerr that he (Dr. Spencer) had published all his cases, and that the three "cured" cases had been investigated and followed up with great care and pains, and remained well from eight to eleven years after operation, and were not, like Dr. Kerr's, brought before the Society shortly after they were operated on. Dr. Kerr's and several other cases, published soon after operation and exhibited at the Society, were of no value whatever as evidence of the best line of treatment. He must also add that Dr. Kerr, in making a large sagittal fundal incision and leaving the wound in the uterus open, had committed a mistake in technique. Olshausen, who suggested the operation performed by Dr. Kerr, had wisely recommended that the wound should be closed by suture (with a view of preventing infection) as Dr. Kerr would find stated in the paper alluded to. He hoped Dr. Kerr would publish the whole of his cases, with the after-histories.

MORTALITY IN CHILDBED BOTH IN HOSPITAL AND IN GENERAL PRACTICE.

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The object of this communication is to present the records of the York Road Hospital and the returns of the Registrars-General for London, England and Wales, Scotland and Ireland in such a form that they may be strictly comparable.

The difference between the mortality of childbirth and mortality in childbed is pointed out.

The diseases included under the respective headings of puerperal sepsis and of accidents of childbirth are enumerated.

The hospital statistics are first dealt with. The death-rate is estimated in terms of the number of deliveries.

In Table A is given the mortality in childbed for three periods: 1833—1860, 1861—1877, and 1879—1904.

In Table B is given the death-rate for the last twenty-five years, under separate headings for puerperal sepsis, accidents of childbirth, and incidental diseases.

A separate record of each fatal case is given in an appendix to Table B, differentiating also those cases sent into hospital on account of the serious nature of the confinement.

In Tables C and D the deaths and death-rate from puerperal septic disease during the last twenty-five years is further considered in relation to the particular antiseptic used in the hospital at the time.

The following facts are worthy of note:

(1) The almost complete absence of serious septic illness during the sublimate periods.

(2) The recurrence of serious septic illness during the experi-

mental use for a short time of salufer for douching purposes only.

(3) The complete absence, on the one hand, of severe septic illness during the last sixteen years among the 8000 odd patients who were attended throughout in hospital.

(4) The significant occurrence, on the other hand, of four cases of fatal sepsis in which ineffectual attempts at delivery had been made outside before admission, and—

(5) The complete failure, when thus introduced, of septic illness to spread and infect other patients.

The various hygienic measures from time to time adopted with a view to improve the condition of the hospital are touched upon, under the heads of ventilation, drainage, and cubic space per patient, in addition to the use of antiseptics and disinfectants.

It is pointed out that, while strictly maintaining the general principles of disinfection, and of endeavouring to maintain in the hospital a condition of rigid asepsis by regarding every attendant—nurse, midwife, or doctor—as a potential purveyor of infection, and by regarding every patient on admission as possibly having in and about the lower parturient passages pathogenic organisms, it has been found possible to abrogate many of the details at one time insisted upon without impairing the efficiency of the methods adopted. For instance, while retaining the douche before delivery and immediately afterwards, routine douching during the greater part of the puerperium has been given up,—the douche is now used once only, on the fifth day; both the labour and lying-in wards have been fumigated less frequently, and formalin substituted for sulphur; the washing of the walls and furniture with carbolic lotions has been discontinued altogether; and more patients are now put to bed in the same ward-space than formerly.

Comment is made on the disastrous results attending the attempt to replace sublimate by salufer for douching. The danger attending the use of many of the much advertised but little proved antiseptic agents is pointed out.

Reference is made to the fallacy of regarding as impracticable the prevention of puerperal sepsis in private practice, either on the ground of the impossibility of preventing infection from without, or because infective poison may be already stowed away

before labour commences in an inaccessible position inside the patient where it cannot be destroyed.

In Tables E and F are given side by side, for purposes of comparison, the mortality of childbirth and in childbed at the York Road Hospital for the last twenty-five years, and in England and Wales for the years 1901—1903.

In spite of the large number of serious cases sent to hospital, the balance shows in favour of the hospital on every count with the exception of intercurrent disease. Deaths occurring under the head of accidents of childbirth are less, and from septic disease the deaths are very markedly less in hospital than in private practice. The mortality of childbirth in the hospital during the last twenty-five years stands in relation to the mortality of childbirth in England and Wales for the last three years for which figures are available as three to four. It may be remarked further, that if the last sixteen years only were taken into account, the difference in favour of the hospital would be still more marked, for, as already stated, during that time only four cases of fatal septic disease have occurred, and these four cases have all been introduced from without.

Finally, a series of tables and charts are presented in order to show the variation in the mortality of childbirth from year to year in London, and in England and Wales, in Scotland and in Ireland. The figures go as far back as the returns given in the reports of the Registrars-General. The death-rates have been estimated according to the number of registered births, which, for all practical purposes, may be reckoned as the number of confinements.

The following conclusions are offered:

(1) The total death-rate from childbirth has not diminished either in England and Wales, in Scotland or in Ireland, where it is abnormally high as compared with the other divisions of the kingdom, but in London it has declined considerably.

(2) The death-rate from accidents of childbirth has declined slightly in each division of the kingdom, but is abnormally high in Ireland, and in London has markedly diminished.

(3) The death-rate from puerperal septic diseases has, if anything, shown a tendency to increase in each division of the kingdom, but in London has been declining for at least the last decade.

TABLE A.—*Deliveries, Deaths, and Death-rate in Childbed at the York Road (General Lying-in) Hospital for three successive periods.*

Period.	Deliveries.	Deaths.	Death-rate from all causes.
1833 to 1860	5,833	180	1 in 32 = 3·08 per cent.
1861 to 1877	3,773	64	1 in 58 = 1·69 „
1879 to 1904	11,186	53	1 in211 = 0·47 „

The hospital was closed for nearly two years—1878 and 1879.

TABLE B.—*Deliveries, Deaths, and Death-rate in Childbed at the York Road (General Lying-in) Hospital for the twenty-five years* 1879 *to* 1904.

Year.	Deliveries.	Deaths (see Appendix) from			
		Sepsis.	Accidents of childbirth.	Incidental causes.	All causes.
1879	13	0	0	0	0
1880	165	1	1	1	3
1881	172	0	0	0	0
1882	325	2	1	0	3
1883	342	3	0	0	3
1884	334	1	0	0	1
1885	395	1	0	3	4
1886	383	0	1	0	1
1887	404	0	1	0	1
1888	497	2	0	0	2
1889	484	1	3	0	4
1890	430	0	0	1	1
1891	463	0	1	1	2
1892	490	0	0	0	0
1893	527	0	1	1	2
1894	535	0	3	1	4
1895	535	0	1	0	1
1896	508	2	0	0	2
1897	520	0	0	1	1
1898	546	0	3	2	5
1899	560	0	2	1	3
1900	500	0	1	0	1
1901	497	0	1	3	4
1902	480	0	1	0	1
1903	556	1	2	0	3
1904	525	0	0	1	1
Total .	11,186	14	23	16	53
Death-rate for the 25 years . .		1 in 799 =0·12 %	1 in 486 =0·20 %	1 in 699 =0·14 %	1 in 211 =0·47 %

APPENDIX TO TABLE B.—*Deaths in Childbed at the York Road (General Lying-in) Hospital for the twenty-five years* 1879 *to* 1904.

Year.	No.	Cause of Death.	Sent in
1880	1	Pneumonia; syphilitic ulceration of larynx	—
„	2	Eclampsia	—
„	3	Septicæmia; abscess in uterine wall, result of injury before delivery	—
1882	4	Mania.	—
„	5	Septicæmia after placenta prævia	—
„	6	Septicæmia; suppurating cyst (probably dermoid). Craniotomy and aspiration of cyst	By medical attendant.
1883	7	Septicæmia	—
„	8	Septicæmia; phlebitis and acute endocarditis	—
„	9	Septicæmia, suppurating hæmatoma	—
1884	10	Septicæmia, phlebitis and acute endocarditis, after tedious labour with contracted pelvis and post-partum hæmorrhage	—
1885	11	Advanced pulmonary phthisis	By medical attendant.
„	12	Advanced pulmonary phthisis	—
„	13	Mercurialism and morphism	—
„	14	Septicæmia, phlebitis and general pyæmia after post-partum hæmorrhage	—
1886	15	Eclampsia	—
1887	16	Eclampsia	—
1888	17	Septicæmia, sloughing of soft parts after unsuccessful attempts to deliver with forceps and cephalotripsy	By medical attendant.
„	18	Septicæmia; hospital gangrene	—
1889	19	Accidental and post-partum hæmorrhage	From hospital district.
„	20	Accidental and post-partum hæmorrhage	—
„	21	Accidental hæmorrhage	—
„	22	Septicæmia; suppurative pyelitis. Cæsarean section for contracted pelvis	By medical attendant.
1890	23	Cancer of uterus. Cæsarean section after four days' labour	By medical attendant.
1891	24	Rupture of uterus; hydrocephalic head	By medical attendant.

APPENDIX TO TABLE B—*continued.*

Year.	No.	Cause of Death.	Sent in.
1891	25	Heart disease, syncope, placenta prævia	By medical attendant.
1893	26	Advanced pulmonary phthisis	—
„	27	Eclampsia	—
1894	28	Rupture of pelvic abscess. Cephalotripsy for contracted pelvis	From hospital district.
„	29	Eclampsia	—
„	30	Hæmorrhage from placenta prævia	By medical attendant.
„	31	Mercurialism	—
1895	32	Rupture of uterus. Cephalotripsy for contracted pelvis	By medical attendant.
1896	33	Septicæmia after placenta prævia	From hospital district.
„	34	Septicæmia after high forceps for contracted pelvis	By medical attendant.
1897	35	Sudden death; probably cerebral apoplexy	—
1898	36	Rupture of uterus	—
„	37	Acute general tuberculosis. Miscarriage	By medical attendant.
„	38	Acute yellow atrophy of liver. Convulsions; cephalotripsy	—
„	39	Hæmorrhage from placenta prævia and uterine fibroid	—
„	40	Hepatic abscess and gall-stones. Convulsions	By medical attendant.
1899	41	Accidental hæmorrhage	From hospital district.
„	42	Eclampsia; cerebral apoplexy	—
„	43	Advanced pulmonary phthisis	—
1900	44	Eclampsia after cephalotripsy	By medical attendant.
1901	45	Eclampsia	—
„	46	Advanced pulmonary phthisis	—
„	47	Tuberculous kidneys, bladder and vagina	By medical attendant.
„	48	Acute lobar pneumonia	—
1902	49	Exhaustion following protracted labour with contracted pelvis	—
1903	50	Septicæmia after protracted labour	By medical attendant.
„	51	Eclampsia	By medical attendant.
„	52	Placenta prævia and post-partum hæmorrhage	—
1904	53	Heart disease, syncope, placenta prævia	—

TABLE C.—*Deaths from Septicæmia at the York Road (General Lying-in) Hospital during four periods in which different antiseptics were used.*

Period and Antiseptic.	Deliveries.	Deaths from septicæmia.	
		Including those sent in.	Excluding those sent in.
1. October, 1879, to April, 1884. CARBOLIC ACID AND CONDY'S FLUID	1111	7	6
2. May, 1884, to August, 1888. CORROSIVE SUBLIMATE . . .	1715	1	1
3. August to October, 1888. CORROSIVE SUBLIMATE AND SALUFER	87*	2	1
4. October, 1888, to December, 1904. CORROSIVE SUBLIMATE . . .	8373	4	0
October, 1879, to December, 1904. WHOLE ANTISEPTIC PERIOD . .	11,186	14	8

* In ten of these cases sublimate solution was used entirely.

TABLE D.—*Death-rate from Septicæmia at the York Road (General Lying-in) Hospital during four periods in which different antiseptics were used.*

Period and Antiseptic.	Death-rate from septicæmia.	
	Including those sent in.	Excluding those sent in.
1. October, 1879, to April, 1884. CARBOLIC ACID AND CONDY'S FLUID	1 in 158 =0·63 %	1 in 185 =0·54 %
2. May, 1884, to August, 1888. CORROSIVE SUBLIMATE . . .	1 in 1715 =0·05 %	1 in 1715 =0·05 %
3. August to October, 1888. CORROSIVE SUBLIMATE AND SALUFER	1 in 43 =2·29 %	1 in 87 =1·14 %
4. October, 1888, to December, 1904. CORROSIVE SUBLIMATE . . .	1 in 2068 =0·04 %	None
October, 1879, to December, 1904. WHOLE ANTISEPTIC PERIOD . .	1 in 799 =0·12 %	1 in 1398 =0·07 %

TABLE E.—*Deliveries and Deaths from* Puerperal Sepsis *and* Accidents of Childbirth (*together giving the* DEATHS FROM CHILDBIRTH), *and from* Incidental Causes *occurring in connection with Pregnancy and Childbirth* (*together giving the* DEATHS IN CHILDBED) *for twenty-five years*—1879 *to* 1904—*at the York Road Hospital, and for three years*—1901 *to* 1903—*in England and Wales.*

	York Road Hospital, 1879—1904.		*England & Wales,* 1901—1903.
Deliveries and births registered .	11,186	...	2,818,577
Deaths from puerperal sepsis . .	14	...	5,750
„ „ accidents of childbirth .	23	...	6,706
„ FROM CHILDBIRTH . . .	37	...	12,456
„ from incidental causes . .	16	...	3,590
„ IN CHILDBED	53	...	16,046

A statement of the fatal cases occurring in connection with pregnancy and childbirth in England and Wales for the years 1901–3 is given in the form of an Appendix to Table E.

A statement of the fatal cases occurring in the York Road Hospital for the twenty-five years 1879—1904 has already been given in the Appendix to Table B.

Appendix to Table E.

Deaths of Women in England and Wales in 1901, 1902, *and* 1903 *definitely returned as either caused by, or associated with, Pregnancy or Childbearing.*

Births in three years, 1901–3	2,818,577
Deaths from puerperal sepsis	5,750
„ „ accidents of childbirth	6,706
„ „ incidental causes	3,590
„ „ all causes	16,046

Cause of Death.

Small-pox	52		
Measles	10		
Scarlet fever	78		
Influenza	191		
Diphtheria	18		
Pyrexia (origin uncertain)	1		
Enteric fever	61		
Diarrhœa, dysentery	41		
Syphilis	11		
Puerperal septicæmia	4212	Puerperal sepsis, 5750.	
Puerperal pyæmia	129		
Phlegmasia alba dolens	256		
Puerperal fever	1153		
Infective endocarditis	9		
Lobar pneumonia	107		
Bronchopneumonia	75		
Pneumonia (not defined)	647		
Tuberculous phthisis	102		
Phthisis (not otherwise defined)	326		
Tuberculous meningitis	4		
Tuberculous peritonitis	11		
General tuberculosis, and other tuberculous diseases	38		
Alcoholism	11		
Rheumatic fever	48		
Chronic rheumatism	1		
Malignant disease	28		
Purpura	7		
Anæmia	84		
Diabetes mellitus	13		
Meningitis, inflammation of brain	9		
Chorea	11		
Epilepsy	47		
Other diseases of nervous system	12		
Valvular disease, endocarditis	186		
Pericarditis	6		
Hypertrophy and dilatation of heart	20		
Fatty degeneration of heart	33		
Syncope, heart disease (not specified)	289		
Cerebral hæmorrhage	9		
Apoplexy, hemiplegia	17		
Laryngitis	9		
Bronchitis	129		
Emphysema, asthma	11		
Pleurisy	29		
Other diseases of respiratory system	18		
Disease of mouth, pharynx	5		
Tonsillitis	1		
Gastric ulcer	28		
Other diseases of stomach	29		
Enteritis	33		
Appendicitis	1		
Intestinal obstruction	27		
Diseases of liver	33		
Diseases of thyroid body	9		
Acute nephritis	179		
Chronic Bright's disease	345		
Other diseases of urinary system	12		
Ovarian tumour	8		
Uterine tumour and other diseases of uterus	38		
Abortion, miscarriage	452	Accidents of childbirth, 6706.	
Puerperal mania	211		
Puerperal convulsions	1185		
Placenta prævia, flooding	2014		
Other accidents of pregnancy and childbirth	2844		
Other causes	26		

Table F.

Death-rate from Puerperal Sepsis *and* Accidents of Childbirth (*together giving the* Mortality from Childbirth) *and from* Incidental Causes *occurring in connection with Pregnancy and Childbirth* (*together giving the* Mortality in Childbed) *for* 25 *years*—1879–1904—*at the York Road Hospital, and for* 3 *years*—1901–1903—*in England and Wales.*

	York Road Hospital. 1879—1904.	England and Wales. 1901—1903.
Death-rate from puerperal sepsis	1 in 799 = 0·12 %	1 in 490 = 0·20 %
Death-rate from accidents of childbirth	1 in 486 = 0·20 %	1 in 420 = 0·23 %
Mortality of Childbirth .	1 in 302 = 0·33 %	1 in 226 = 0·44 %
Death-rate from incidental causes	1 in 699 = 0·14 %	1 in 785 = 0·12 %
Mortality in Childbed .	1 in 211 = 0·47 %	1 in 175 = 0·56 %

Table G.

Death-rate of Childbirth in London *from Puerperal Fever or Metria, from Accidents of Childbirth, and from all Causes, estimated for* 10,000 *Children born alive.*

Year.	Births, excluding stillborn children.	Deaths from childbirth from—			Childbirth death-rate from—		
		Puerperal sepsis.	Accidents of childbirth.	All causes.	Puerperal sepsis.	Accidents of childbirth.	All causes.
1848	71,265	321	250	571	45·0	35·0	80·1
1849	72,662	258	244	502	35·5	33·5	69·0
1850	74,317	199	244	443	26·7	32·8	59·6
1851	77,871	180	231	411	23·1	29·6	52·7
1852	80,484	188	262	450	23·3	32·5	55·9
1853	83,878	140	252	392	16·6	30·0	46·7
1854	84,684	172	263	435	20·3	31·0	51·3

TABLE G—*continued.*

Year.	Births, excluding stillborn children.	Deaths from childbirth from—			Childbirth death-rate from—		
		Puerperal sepsis.	Accidents of child-birth.	All causes.	Puerperal sepsis.	Accidents of child-birth.	All causes.
1855	84,944	199	272	471	23·4	32·0	55·4
1856	86,833	170	246	416	19·5	28·3	47·9
1857	91,048	136	227	363	14·9	24·9	39·8
1858	88,620	165	265	430	18·6	29·9	48·5
1859	92,556	207	257	464	22·3	27·7	50·1
1860	92,825	145	254	399	15·6	27·3	42·9
1861	96,389	162	234	396	16·8	24·2	41·0
1862	97,418	190	241	431	19·5	24·7	44·2
1863	103,897	220	339	559	21·1	32·6	53·8
1864	102,187	261	315	576	25·5	30·8	56·3
1865	106,722	182	300	482	17·0	28·1	45·1
1866	107,992	153	316	469	14·1	29·2	43·4
1867	112,264	157	297	454	13·9	26·4	40·4
1868	115,744	219	275	494	18·9	23·7	42·6
1869	111,930	198	259	457	17·6	23·1	40·8
1870	113,499	217	306	523	19·0	26·9	46·0
1871	112,535	182	318	500	16·1	28·2	44·3
1872	117,200	251	253	504	21·4	21·5	43·0
1873	121,100	306	326	632	25·2	26·9	52·1
1874	121,394	456	335	791	37·5	27·5	65·0
1875	122,875	304	324	628	24·7	26·3	51·1
1876	127,015	255	354	609	20·0	27·8	47·9
1877	127,257	217	289	506	17·0	22·7	39·7
1878	129,184	195	255	450	15·0	19·7	34·8
1879	134,096	194	245	439	14·4	18·2	32·7
1880	132,173	268	253	521	20·2	19·1	39·4
1881	132,674	332	228	560	25·0	17·1	42·2
1882	133,200	287	225	512	21·5	16·8	38·4
1883	133,656	307	180	487	22·9	13·4	36·4
1884	137,495	327	193	520	23·7	14·0	37·8
1885	132,506	323	182	505	24·3	13·7	38·1
1886	133,700	279	200	479	20·8	14·9	35·8
1887	133,075	328	163	491	24·6	12·2	36·8
1888	131,080	275	169	444	20·9	12·8	33·8
1889	131,487	222	166	388	16·8	12·6	29·5
1890	130,690	237	212	449	18·1	16·2	34·3
1891	134,003	222	286	508	16·5	21·3	37·9
1892	131,535	313	304	617	23·7	23·1	46·8
1893	132,975	352	335	687	26·4	25·1	51·6
1894	130,553	210	266	476	16·0	20·3	36·4
1895	133,715	208	212	420	15·5	15·8	31·4
1896	135,796	225	280	505	16·5	20·6	37·1
1897	133,618	215	229	444	16·0	17·1	33·2
1898	132,432	184	177	361	13·8	13·3	27·2
1899	133,120	209	217	426	15·7	16·3	32·0
1900	130,868	169	230	399	12·9	17·5	30·4
1901	131,278	184	219	403	14·0	16·6	30·6
1902	132,810	201	210	411	15·1	15·8	30·9
1903	130,906	170	197	367	12·9	15·0	28·0

Table H.

Death-rate of Childbirth in England and Wales *from Puerperal Fever or Metria, from Accidents of Childbirth, and from All Causes, estimated for* 10,000 *children born alive.*

Year.	Births, excluding stillborn children.	Deaths from childbirth from—			Childbirth death-rate from—		
		Puerperal sepsis.	Accidents of child-birth.	All causes.	Puerperal sepsis.	Accidents of child-birth.	All causes.
1847	539,965	784	2442	3226	14·5	45·2	59·7
1848	563,059	1365	2080	3445	24·2	36·9	61·2
1849	578,159	1165	2174	3339	20·1	37·6	57·7
1850	593,422	1113	2139	3252	18·7	36·0	54·8
1851	615,865	1009	2281	3290	16·3	36·8	53·4
1852	624,012	972	2275	3247	15·5	36·4	52·0
1853	612,391	795	2268	3063	12·9	37·0	50·0
1854	634,405	954	2055	3009	15·0	32·3	47·4
1855	635,043	1079	1900	2979	16·9	29·9	46·9
1856	657,453	1067	1821	2888	16·2	27·6	43·9
1857	663,071	836	1951	2787	12·5	29·4	42·0
1858	655,481	1068	2063	3131	16·2	31·4	47·7
1859	689,881	1238	2258	3496	17·9	32·7	50·6
1860	684,048	987	2186	3173	14·4	31·9	46·3
1861	696,406	886	2109	2995	12·7	30·2	43·0
1862	712,684	940	2137	3077	13·1	29·9	43·0
1863	727,417	1155	2433	3588	15·8	33·5	49·3
1864	740,275	1484	2532	4016	20·0	34·2	54·2
1865	748,069	1333	2490	3823	17·9	33·2	51·1
1866	753,870	1197	2485	3682	15·8	32·9	48·8
1867	768,349	1066	2346	3412	13·8	30·5	44·4
1868	786,858	1196	2307	3503	15·1	29·3	44·5
1869	773,381	1181	2102	3283	15·2	27·1	42·4
1870	792,787	1492	2383	3875	18·8	30·0	48·9
1871	797,428	1464	2471	3935	18·3	30·9	49·3
1872	825,907	1400	2403	3803	16·9	29·0	45·9
1873	829,778	1740	2375	4115	20·9	28·6	49·5
1874	854,956	3108	2819	5927	36·3	32·9	69·3
1875	850,607	2504	2560	5064	29·4	30·2	59·6
1876	887,968	1746	2396	4142	19·6	26·9	46·6
1877	888,200	1444	1999	3443	16·2	22·5	38·8
1878	891,838	1415	1885	3300	15·8	21·1	37·0
1879	880,389	1464	1876	3340	16·6	21·3	37·9
1880	881,643	1659	1833	3492	19·0	20·7	39·8
1881	883,642	2287	1940	4227	25·8	21·9	47·8
1882	889,014	2564	1960	4524	28·8	22·0	50·8
1883	890,722	2616	1892	4508	29·3	21·2	50·6
1884	906,750	2468	1879	4347	27·2	20·7	47·9

TABLE H—*continued.*

Year.	Births, excluding stillborn children.	Deaths from childbirth from—			Childbirth death-rate from—		
		Puerperal sepsis.	Accidents of child-birth.	All causes.	Puerperal sepsis.	Accidents of child-birth.	All causes.
1885	894,270	2420	2029	4449	27·0	22·6	49·7
1886	903,760	2078	1799	3877	22·9	19·9	42·8
1887	886,331	2450	1710	4160	27·6	19·2	46·9
1888	879,868	2386	1774	4160	27·1	20·1	47·2
1889	885,944	1852	1733	3585	20·9	19·5	40·4
1890	869,937	1956	2299	4255	22·4	26·4	48·9
1891	914,157	1973	2814	4787	21·5	30·6	52·2
1892	897,957	2356	2838	5194	26·2	31·6	57·8
1893	914,572	3023	2927	5950	30·0	32·0	65·1
1894	890,289	2167	2608	4775	24·3	29·2	53·6
1895	922,291	1849	2370	4219	20·0	25·6	45·7
1896	915,331	2053	2508	4561	22·4	27·3	49·8
1897	921,683	1836	2414	4250	19·9	26·1	46·1
1898	923,165	1707	2367	4074	18·4	25·6	44·1
1899	928,646	1908	2418	4326	20·5	26·0	46·6
1900	927,062	1941	2514	4455	20·9	27·1	48·1
1901	929,807	2079	2315	4394	22·3	24·8	47·3
1902	940,509	2003	2202	4205	21·2	23·5	44·7
1903	948,271	1668	2189	3857	17·5	23·0	40·6

TABLE I.

Death-rate of Childbirth in Scotland *from Puerperal Fever or Metria from Accidents of Childbirth, and from All Causes, estimated for* 10,000 *Children born alive.*

Year.	Deaths from childbirth from—				Childbirth death-rate from—		
	Births, excluding stillborn children.	Puerperal sepsis.	Accidents of child-birth.	All Causes.	Puerperal sepsis.	Accidents of child-birth.	All causes.
1855	93,349	169	341	510	18·1	36·5	54·6
1856	101,822	143	351	494	14·0	34·4	48·5
1857	103,415	145	304	449	14·0	29·3	43·3
1858	104,018	152	302	454	14·6	29·0	43·6
1859	106,543	175	333	508	16·4	31·2	47·6

TABLE I—*continued.*

Year.	Deaths from childbirth from—				Childbirth death-rate from—		
	Births, excluding stillborn children.	Puerperal sepsis.	Accidents of child-birth.	All Causes.	Puerperal sepsis.	Accidents of child-birth.	All Causes.
1860	105,629	236	328	564	22·3	31·0	53·3
1861	107,009	203	308	511	18·9	28·7	47·7
1862	107,009	130	305	435	12·1	28·4	40·6
1863	109,341	195	376	571	17·8	34·3	52·2
1864	112,333	254	374	628	22·6	33·2	55·9
1865	113,070	213	422	635	18·8	37·3	56·1
1866	113,667	181	356	537	15·9	31·3	48·1
1867	114,044	163	321	484	14·2	28·1	42·4
1868	115,514	140	354	494	12·1	30·6	42·7
1869	113,354	153	410	563	14·3	36·1	49·6
1870	115,390	202	381	583	17·5	33·0	50·4
1871	116,128	225	420	645	19·3	36·1	55·5
1872	118,765	219	391	610	18·4	32·9	51·3
1873	119,700	251	325	576	20·9	27·1	48·1
1874	123,711	378	442	820	30·5	35·7	66·2
1875	123,578	389	459	848	31·4	37·1	68·6
1876	126,534	231	374	605	18·2	29·5	47·8
1877	126,822	163	394	557	12·8	31·0	43·9
1878	126,773	164	380	544	12·9	29·9	42·9
1879	125,730	184	397	581	14·6	31·5	46·2
1880	124,570	185	416	601	14·8	33·3	48·2
1881	126,171	235	462	697	18·6	36·6	55·2
1882	126,158	267	403	670	21·1	31·9	53·1
1883	124,458	363	427	790	29·1	34·3	63·3
1884	129,157	336	371	707	26·0	28·7	54·7
1885	126,100	374	405	779	31·2	34·0	61·7
1886	127,890	270	231	501	21·1	25·9	47·0
1887	124,418	275	338	613	22·1	27·1	49·2
1888	123,269	309	351	660	24·2	28·4	53·5
1889	122,783	277	346	623	22·5	28·1	50·8
1890	121,526	324	363	687	26·6	29·0	56·5
1891	125,986	378	340	718	30·0	26·9	56·9
1892	125,043	315	373	688	25·1	29·8	55·0
1893	127,110	252	336	588	19·8	26·4	46·2
1894	124,367	285	342	627	22·9	27·4	50·4
1895	126,494	253	355	608	20·0	28·0	48·0
1896	129,172	220	357	577	17·0	27·6	48·2
1897	128,877	205	331	536	15·9	25·6	41·5
1898	130,861	227	351	578	17·3	26·8	44·1
1899	130,733	214	341	555	16·3	26·0	42·4
1900	131,401	225	342	567	17·1	26·0	43·1
1901	132,192	158	340	498	11·9	25·7	38·4
1902	132,267	198	363	561	14·9	27·4	42·4

Table J.

Death-rate of Childbirth in Ireland *from Puerperal Fever or Metria, from Accidents of Childbirth, and from All Causes, estimated for* 10,000 *Children born alive.*

Year.	Births, excluding stillborn children.	Deaths from childbirth from—			Childbirth death-rate from—		
		Puerperal sepsis.	Accidents of child-birth.	All causes.	Puerperal sepsis.	Accidents of child-birth.	All causes.
1864	136,414	273	606	879	20·0	44·4	64·4
1865	144,970	284	644	928	19·5	44·4	64·0
1866	146,090	328	667	995	22·4	45·6	68·1
1867	144,388	302	620	922	20·9	42·9	63·8
1868	146,051	264	676	940	18·0	46·2	64·3
1869	145,659	303	650	953	20·8	44·6	65·4
1870	149,846	360	670	1030	24·0	44·7	68·7
1871	151,355	394	616	1010	26·0	40·6	66·7
1872	149,278	307	637	944	20·5	42·6	63·2
1873	144,377	275	493	768	19·0	34·0	53·1
1874	141,328	333	602	935	23·5	42·6	66·2
1875	138,320	442	563	1005	31·9	40·7	72·6
1876	140,469	414	591	1005	29·4	42·0	71·5
1877	139,659	377	581	958	26·9	42·6	68·5
1878	134,117	315	558	873	23·4	41·6	65·0
1879	135,328	340	571	911	25·1	42·1	67·3
1880	128,086	347	544	891	27·0	42·4	69·5
1881	125,847	354	462	816	28·1	36·7	64·8
1882	122,648	407	544	951	33·1	44·3	77·5
1883	118,163	307	479	786	25·8	40·5	66·5
1884	118,875	300	513	813	25·2	43·1	68·3
1885	115,951	370	495	865	31·9	42·6	74·6
1886	113,927	332	479	811	29·1	42·0	71·1
1887	112,400	316	510	826	28·0	45·3	73·4
1888	109,557	345	501	846	31·4	45·7	77·2
1889	107,841	268	454	722	24·8	42·0	66·9
1890	105,254	252	440	692	23·9	41·7	65·7
1891	108,116	236	421	657	21·8	38·9	60·7
1892	104,234	275	403	678	26·3	38·6	65·0
1893	106,082	384	420	804	36·1	39·5	75·7
1894	105,354	454	412	866	43·0	39·1	82·1
1895	106,113	321	448	769	30·2	42·2	72·4
1896	107,641	252	427	679	23·4	39·6	62·1
1897	106,664	228	468	696	21·3	43·8	65·2
1898	105,457	179	381	560	16·9	36·1	53·1
1899	103,900	210	391	601	20·2	37·6	57·8
1900	101,459	228	422	650	22·5	41·5	64·0
1901	100,976	220	404	624	21·7	40·0	61·7
1902	101,863	220	415	685	21·5	40·7	62·2
1903	101,831	233	340	573	32·7	33·3	66·0

Table K.

The Mean Mortality from Childbirth and from Puerperal Sepsis and Accidents of Childbirth in London, England and Wales, Scotland, and Ireland, before* 1880 *and after* 1881.

	Puerperal sepsis.	Accidents of childbirth.	Childbirth, from all causes.
London—			
33 years (1848–1880) . . .	21·2	27·3	48·5
23 „ (1881–1903) . . .	18·8	16·5	35·4
England and Wales—			
34 years (1847–1880) . . .	17·6	31·0	48·7
23 „ (1881–1903) . . .	23·7	24·6	48·4
Scotland—			
26 years (1855–1880) . . .	17·5	32·1	49·8
22 „ (1881–1902) . . .	21·3	28·5	50·0
Ireland—			
17 years (1864–1880) . . .	23·4	42·5	66·0
23 „ (1881–1903) . . .	26·9	40·2	67·1

* Per 10,000 births.

Note.—In Charts I, II, III, and IV puerperal sepsis has been placed on the base line, and, on top of it, accidents of childbirth. The upper limit of the diagram from the base line represents the total mortality from childbirth. The upper broken line gives the mean death-rate from childbirth before 1880 and after 1881. The lower broken line gives the mean death-rate from puerperal sepsis before 1880 and after 1881.

In Charts V, VI, and VII the readings are all from the base-line.

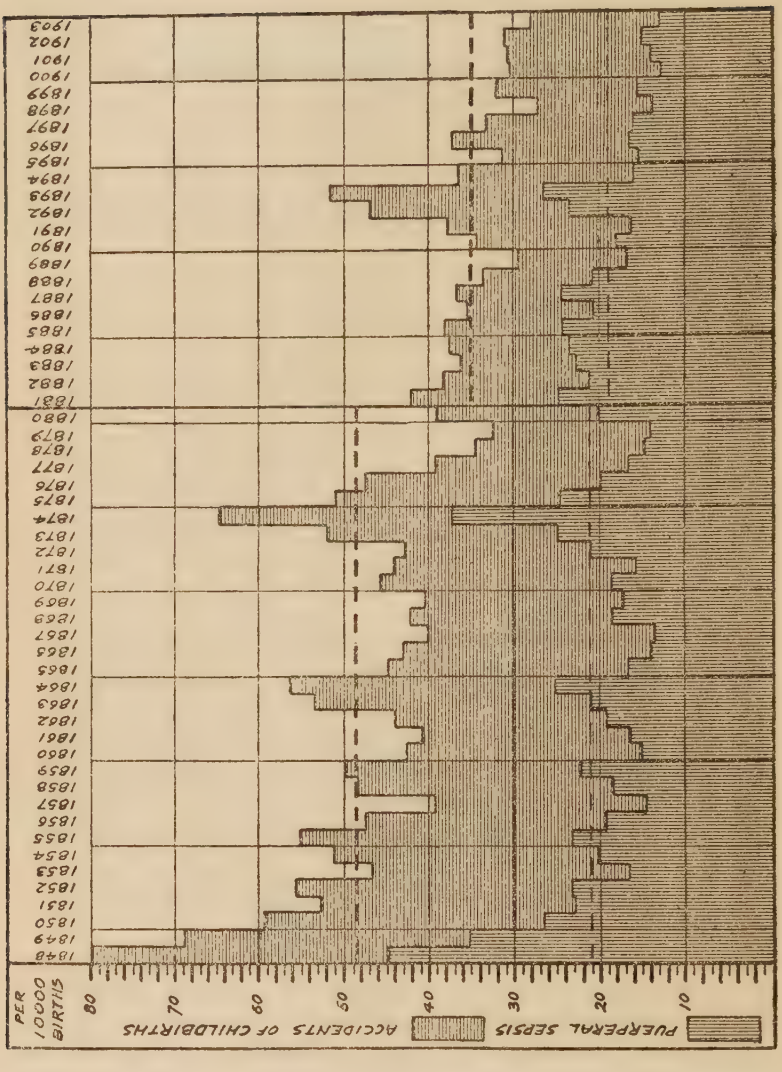
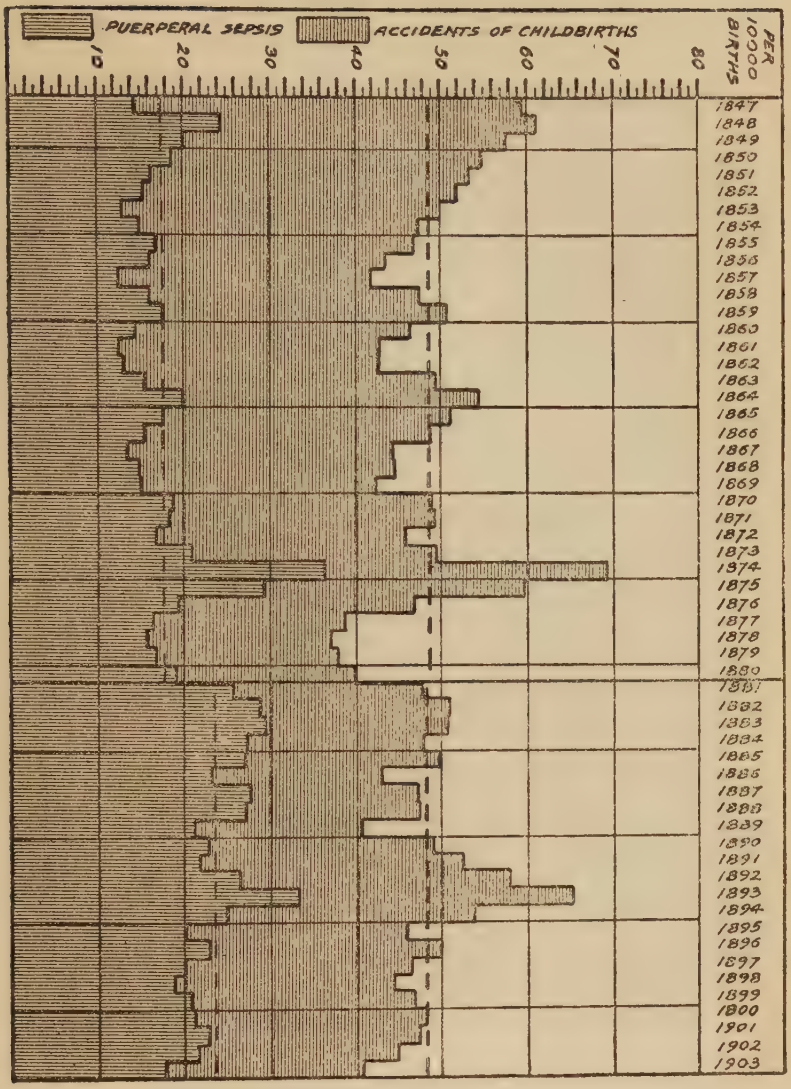


CHART I.*—*London.*

* See Note, p. 211.



* See Note, p. 211.

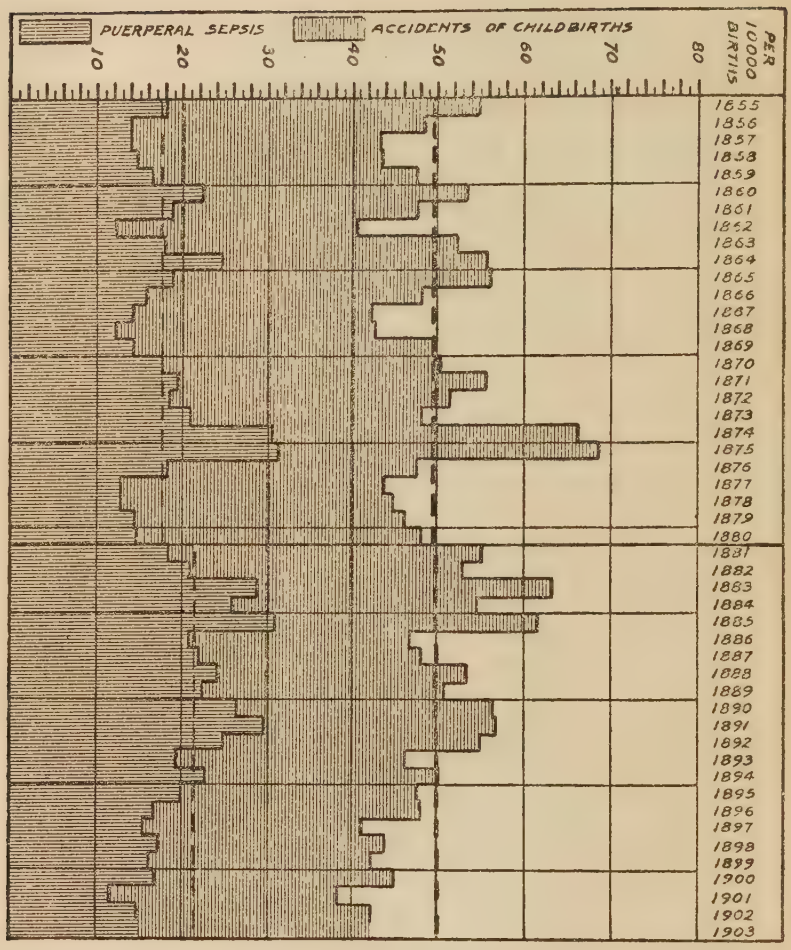
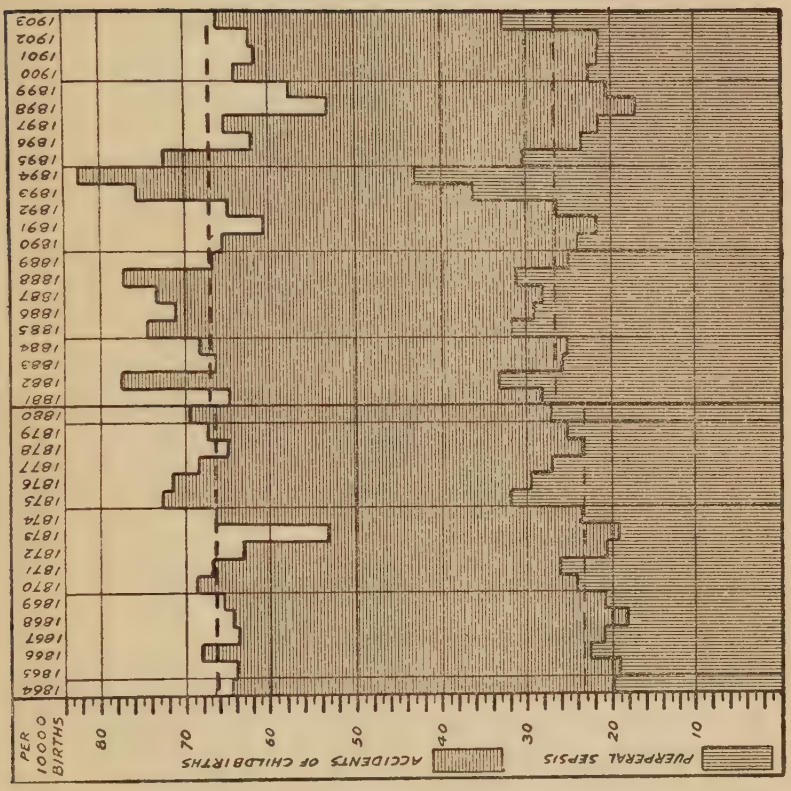


CHART III.*—*Scotland.*

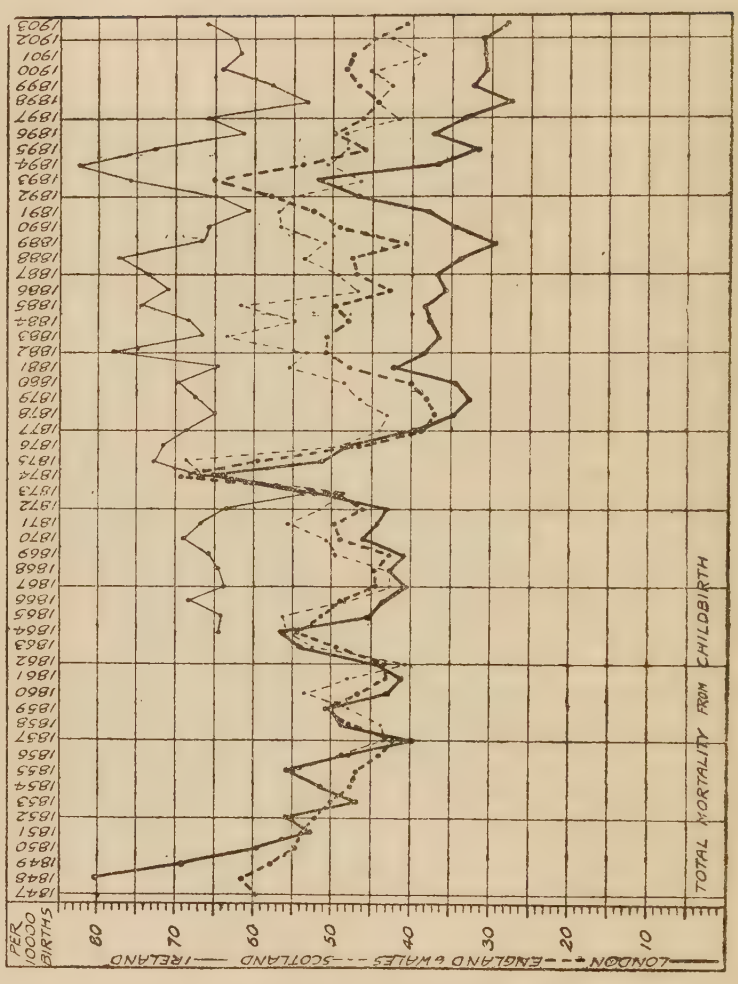
* See Note, p. 211.

CHART IV.*—*Ireland.*



* See Note, p. 211.

CHART V.*—*Childbirth Death-rate in London, England and Wales, Scotland and Ireland.*



* See Note, p. 211.

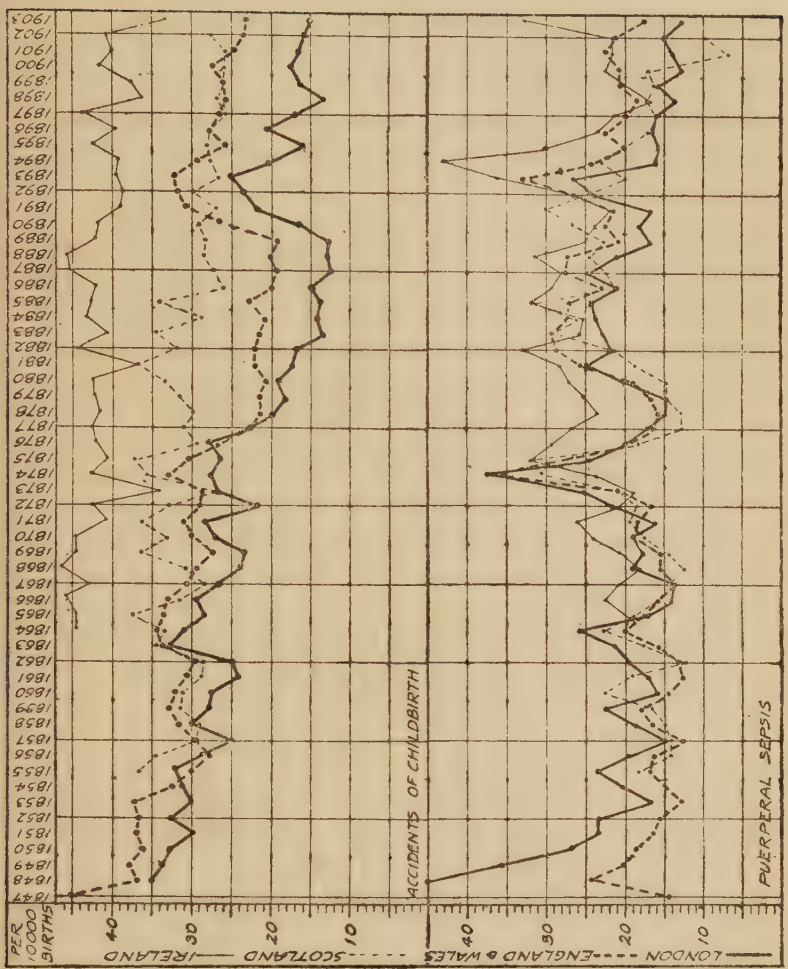


CHART VII.—*Death-rate from Puerperal Sepsis in London, England and Wales, Scotland and Ireland.*

* See Note, p. 211.

Since the year 1893, when I first drew attention to the persistent death-rate of childbirth throughout England and Wales and in London and the provinces,* I have frequently been appealed to to furnish data of the later years. And though, in dealing with fever in childbed † before this Society in 1890, I recorded the deaths which had taken place in the York Road Hospital during the period then under review, no complete record up to the present exists in our 'Transactions.'

On the present occasion I propose to bring both up to date and to put the mortality figures both from the hospital records and from the returns of the Registrar-General in such a form that they can be readily compared, and to deal, not only with the mortality of childbirth, but also with the whole of the mortality in childbed.

The mortality of childbirth includes the deaths from: (1) puerperal septic disease—variously returned in the reports of the Registrar-General as from puerperal septicæmia—puerperal pyæmia, phlegmasia alba dolens, and puerperal fever or metria; (2) accidents of childbirth returned under the heads of abortion and miscarriage, puerperal mania, puerperal convulsions, placenta prævia, and flooding and other accidents of pregnancy and childbirth.

The mortality in childbed includes also other causes of death occurring in connection with pregnancy and childbirth. A record of these incidental causes of death is now available, and is given for England and Wales for the three years 1901–3, but not for the other divisions of the Kingdom. From the hospital records I am able to lay before the Society the mortality in childbed for three periods: 1833–1860, 1861–1879, and 1879–1904 (Table A). But it is impossible to state separately the mortality of childbirth for the earlier of these periods, though it is known that puerperal septic disease was often rampant and always played a prominent part in maintaining a high

* "The Mortality of Childbirth," 'Lancet,' July 1st, 1893.

† "Fever in Childbed: Part I, General Hygiene and Antisepsis," 'Obst. Soc. Trans.,' vol. xxxii, 1890.

mortality. Indeed, owing to the influence of sepsis, the mortality on occasion reached an appalling figure.

But since the hospital was re-opened in October, 1879, it has been possible to separate the figures for puerperal sepsis, for accidents of childbirth, and for incidental causes, and thus to separately estimate the mortality in childbed and the mortality of childbirth (Table B).

A record of the cause of death in each case is given in the form of an appendix (Appendix to Table B).

An hospital possessing a reputation such as the York Road Hospital naturally attracts an undue proportion of serious cases, and many of the cases are sent into hospital, not only by neighbouring practitioners but sometimes even from a distance. When, as often happens, cases come to hospital during the course of labour and after prolonged and ineffectual attempts at delivery have already been made, sepsis is apt to be introduced with the patient and a fatal result not infrequently takes place, for which the hospital cannot justly be held responsible.

All the fatal cases which have, in this way, been sent in from outside are noted in a separate column of the appendix to Table B, and are also separately recorded in the two succeeding Tables, C and D. These tables record the mortality from puerperal sepsis during the last twenty-five years, distinguishing four periods according to the antiseptic in general use.

It will be observed that for the last sixteen years or more among 8373 confinements no death from sepsis has taken place when the case has been dealt with throughout in hospital, but that during this time four patients (Nos. 22, 33, 34, and 50 in the appendix), sent in after the manner above described, have died from septic disease. This I look upon as an important fact. For these women were delivered and attended by the same midwives and nurses, and occupied the same labour wards and lying-in wards, in close proximity to other patients; yet the disease failed to spread—a sure indication to my mind of the efficiency of the routine measures adopted with a view to

prevent the spread of infection, and the most convincing proof that puerperal sepsis is essentially a preventible disease.

The figures given in the above tables speak with greater eloquence than any mere words of mine as to the excellence of the results which have been attained in this particular hospital. I am aware, and it is but fair that I should add, that such results have been equalled in other hospitals and maternities.

Before dealing with the means by which such results have been attained, I would explain that, since I occupied the position of house-physician and of physician to out-patients at the York Road Hospital during the years 1883–4–5, I have been personally acquainted with all the arrangements. Further, I have, by personal inquiry and by study of the Minutes of the Managing Committee and of the Annual Reports, become conversant with all the arrangements which have existed since the re-opening of the hospital in October, 1879. I am now engaged, in conjunction with our Honorary Secretary, in compiling a short history of the hospital for the last twenty-five years, and I have searched the records antecedent to that date.

The York Road Hospital is an old and, in many respects, inconvenient building, dating from the year 1830. Owing to the high mortality which usually prevailed, and which often reached alarming proportions, endeavours were made, by strictly limiting the admission of patients and by ventilation of the wards, to improve the condition of the hospital. Thus, in 1841, £2,250 was spent on a ventilating apparatus, and year after year hundreds of pounds were in addition spent on improving and maintaining it. Even then, in October, 1878, Professor de Chaumont reported that he attributed the insanitary state of the hospital, in great measure, to defective ventilation. Thousands more were then spent on improving the apparatus, but it proved so unsatisfactory that it has been abandoned as valueless, and recourse has been made to

open windows and a fire maintained in an open fire-place in each ward.

The net result of the endeavours to improve the condition of the hospital by attempts (not very satisfactory) at ventilation may be gauged by reference to Table A, to which reference has already been made. This table shows that the mortality of the hospital from 1833 to 1860 averaged 1 in 32 deliveries, *i.e.* 3·08 per cent., and from 1861 to 1877, 1 in 58, *i.e.* 1·69 per cent.

No separate account of the amount of puerperal sepsis is available, but it is known that so-called epidemics of puerperal fever were of frequent occurrence, and that the mortality from this cause, always considerable, at times became appalling. For instance, in 1877, out of 63 patients delivered, 9 died, and in consequence it was decided to close the hospital.

After certain structural alterations, in which an attempt was made to improve the ventilation as above described, had been effected, the hospital was re-opened in October, 1879. A committee, composed of the visiting staff, presided over by the present Lord Lister, drew up a set of antiseptic rules, which were adopted by the Committee of Management. These rules have, from time to time, been revised, but the general principles have remained the same. The details only have been changed.

The result is set forth in Tables C and D, which give the mortality from puerperal sepsis in relation to the number of deliveries, in four periods according to the general antiseptic in use. I have dealt with this matter in detail in the paper which I read before this Society in 1890, to which reference has already been made. It is sufficient here to add that, while strictly maintaining the general principles of disinfection, and of endeavouring to maintain in the hospital a condition of rigid asepsis, by regarding every attendant—nurse, midwife, or doctor—as a potential purveyor of infection, and by regarding every patient on admission as possibly having in and about the lower parturient passages pathogenic organisms, it has

been found possible to abrogate many of the details at one time insisted upon without impairing the efficiency of the methods adopted. For instance, routine douching during the greater part of the puerperium has been given up, and the douche is now used once only, on the fifth day; both the labour and lying-in wards have been fumigated less frequently, and formalin substituted for sulphur; the washing of the walls and furniture with carbolic lotions has been discontinued altogether; and more patients are now put to bed in the same ward-space than formerly.

But, as I explained before in dealing with the question of morbidity, the results obtained under the use of corrosive sublimate have been so satisfactory, and proved so disastrous when an attempt was made to substitute salufer in a selected number of cases, that my colleague and I have hesitated to adopt any other antiseptic in its place.

From what one often sees, and from what one ascertains by inquiry into the circumstances of individual cases of failure to maintain an aseptic condition in private practice, I cannot help thinking that failure is mainly due to a want of application of the fundamental principles of asepsis. It is not the fault of this or that antiseptic so much as a failure to grasp the important details pertaining to the use of any antiseptic which leads to failure. As I said in my previous paper, "It is not the mere use of antiseptics, but the method of using them, and the faithful carrying out of details concerning their application, which calls forth their special value."

Indeed, I think it highly probable that during the first period of the antiseptic *régime* in the York Road Hospital, had the care at present exercised in the use of sublimate solutions been adapted to the employment of carbolic lotions as the general antiseptic used, the results would have been little, if anything, short of those subsequently attained.

The use of salufer and its disastrous effect has proved a valuable object-lesson and a salutary warning to us not

to adopt any of the numerous so-called antiseptics—and their name is legion—without a full trial of their efficacy and a knowledge of the difficulties and pitfalls attendant upon their use. Not a few of the so-called antiseptics which have of recent years been placed upon the market and extensively advertised contain obvious chemical incompatibles. Others are of doubtful bactericidal potency —a mere delusion and a snare. I agree with 'Truth' that it is nothing less than a scandal that the sale of such articles as antiseptics should be permitted until their germicidal powers have been ascertained beyond dispute.

With reference to the possibility of preventing puerperal sepsis in private practice, a despairing note has recently been sounded in Germany,* a note which has found an echo in this country. The profession has been invited to turn its attention to the curative treatment of puerperal septic diseases on the assumption that in private practice it is impossible either to prevent infection from without, or that the source of the disease is already stored away inside the patient before the onset of labour, and that it cannot be got at and its ravages prevented. I am firmly convinced that both assumptions are wrong, and for the following reasons: I hold that if these diseases can be prevented in hospital, where not many years ago the ravages of sepsis were far in excess of private practice, where the patients are brought into close contact, the healthy with the unhealthy, where the subjects are generally drawn from the less better circumstanced class, and where the least promising cases naturally gravitate—if, under these circumstances, septic disease can be practically eliminated, it certainly should be possible to eliminate also this grave source of mortality and of morbidity from private practice. For, in private, the circumstances are less favourable to its spread; most of the cases are to all intents and purposes isolated, and many of the women

* E. Bumm, 'Berliner Klinische Wochenschrift,' p. 1145, October 31st 1904. See "Epitome" of 'Brit. Med. Journ.,' p. 10, January 21st, 1905.

who suffer are in easy circumstances and are placed in the midst of healthy surroundings.

Yet what do we find?

In Tables E and F, I have ranged side by side, for purposes of comparison, the death, and mortality *of* child*birth* and *in* child*bed* at the York Road Hospital for the last twenty-five years and in England and Wales for the only three years (1901–1903) for which complete figures are available. I commend the comparison to the consideration of the Society, merely asking that the far more serious nature of the hospital cases be borne in mind and also that due allowance be made for the fact that in the hospital record are included many years during which the methods of combating the disease were admittedly imperfect. But, in spite of this, the balance shows in favour of the hospital on every count, with the exception of intercurrent diseases. Deaths occurring under the head of accidents of childbirth are less, and from septic diseases the deaths are very markedly less in hospital than in private. Had the last sixteen years only of the hospital records been taken for comparison, the difference under the last mentioned heading would be enormous. For, as previously mentioned, the only cases of sepsis which have occurred during that time have been four in number, and all these four cases have been introduced from without.

Now for the cause of the difference and for the remedy.

I hold now, as I held when I first drew attention to the persistent mortality of childbirth from sepsis fifteen years ago, that a small proportion only of obstetric practice is at present in the hands of those who have been educated in the use of antiseptics, and even of those who make a practice of following out aseptic and antiseptic principles but few do so in a really efficient manner. I agree with the weighty words which fell from the lips of our President in his inaugural address. If puerperal sepsis is to be eliminated, it is necessary to go back to the root of the matter and to instruct the student *practically and under proper supervision,* as is done now and for some years

now has been done in the case of the trained nurse and midwife, in the rudiments and essentials of asepsis and to foster a true perception of the value and limitation of antiseptic agents, leaving the details only to be varied by individual circumstances, but insisting that every essential point be strictly observed. For, as one weak link is apt to spoil the continuity of a chain, so the faulty application of aseptic and antiseptic principles in a single detail may lead to signal disaster.

To sum up. I have expressed in relation to the number of deliveries at the York Road Hospital the mortality in childbed for three different periods ranging together over seventy years.

For the last twenty-five years I have given a record of each fatality, and I have for that time been able to differentiate, by including under a separate heading all the incidental causes of death, the mortality of childbirth from the mortality in childbed; and, for that time also, I have separated the deaths from puerperal septic diseases from the accidents of childbirth.

I have indicated the changes and improvements which have been effected in the hospital service during the whole of the period under review.

I have shown the improvements in the condition of the hospital which have been effected, gradually at first, but rapidly during the use of antiseptics, and particularly that septic diseases have been successfully combated even when introduced by patients directly into the wards of the hospital.

I have shown, on the other hand, that in obstetric practice generally throughout England and Wales the mortality of childbirth remains persistently high, and that deaths from septic diseases have certainly not diminished.

I have expressed my firm conviction that this lamentable loss of life is remediable and that septic diseases as a cause of death from childbirth are preventible, and I have suggested the lines along which improvement can be effected by insisting on the practical instruction of the

midwifery student as well as midwives and nurses in the essentials of asepsis and the use of antiseptics.

Finally, as showing the variation in the mortality of childbirth from year to year, and how little advance, as evidenced by the mortality statistics, is as yet apparent in obstetric practice generally, I have prepared the accompanying Tables and Charts. For this purpose I have laid under contribution the Reports of the Registrars-General. It may be objected that, owing to faulty registration and to defective death-certification, the returns are not reliable. That this objection may have some weight in estimating the amount of mortality, especially as regards puerperal sepsis (in which for obvious reasons the death returns are avowedly defective), I fully admit; but, as by these data it is sought to compare the mortality of one year with that of another, and of one part of the kingdom with another, and these sources of error apply to each, the result cannot be materially affected. In estimating the true amount of mortality, however, a mental correction should certainly be made from this obvious source of error.

These tables and charts represent the mortality of childbirth for London and for each division of the kingdom. The figures go back as far as the returns given in the Reports of the Registrars-General, and onwards to include the year 1903. I regret that it has been impossible to include the figures for the northern division of Great Britain for the same year; and the Registrar-General for Scotland informs me that it will yet be some months before they will be available.

As in my original communication on the mortality of childbirth, the death-rates have been estimated according to the number of registered births, which, on the one hand, take no account of multiple pregnancies and, on the other, are exclusive of stillborn children. The registered births provide a fairly correct index of the number of deliveries, so that by adopting the plan of estimating the death-rate in relation to them a fair estimate can be obtained of the mortality associated with childbearing,

and, at any rate, the results year by year are strictly comparable.

In Charts I, II, III, and IV, which deal respectively with London, England and Wales, Scotland, and Ireland, the mortality for each year has been presented by placing upon the base-line the death-rate from puerperal sepsis, and above this the death-rate from accidents of childbirth. The distance from the base-line to the upper limit of the diagram accordingly measures the death-rate of childbirth from all causes. The total mortality, and the mortality from puerperal sepsis may be read on the scale in relation to 10,000 confinements.

In Charts V, VI, and VII, on the other hand, the total mortality and the death-rate for each year from puerperal sepsis and from accidents of childbirth are represented separately, and each upon a separate base, in such a manner as to bring the mortality for London, and for each division of the kingdom, into comparison.

Before proceeding to consider the evidence afforded by these tables and charts, it should be mentioned that since 1881 special inquiries have been instituted by the Registrar-General (for England and Wales, but I have no information if it applies equally to Scotland and Ireland) in all cases where a death is returned in connection with pregnancy or childbirth, and doubt exists as to whether it should be rightly included in the deaths associated with childbearing, either as a result of puerperal sepsis or of one or other of the accidents of childbirth. As the result of the inquiries thus instituted, an addition, roughly estimated at one-twelfth of the return, has been made. In instituting a comparison between the years before and after that date this addition should be borne in mind. In spite of this addition, the Registrar-General reports that even yet grave doubt exists as to the figures given under the head of puerperal sepsis diseases being regarded as a full complement of the mortality actually occurring under that head.

And in studying these charts it will be observed that

the curve representing the mortality from the "accidents of childbirth" has an undoubted tendency to follow the curve of the death-rate from septic diseases. This is due, doubtless, to the fact that no inconsiderable proportion of cases returned as dying from accidents are complicated by sepsis in some form or other, and that the returns are for obvious reasons preferably made in such complicated cases under the head of accidents.

In each chart a mean has been drawn, both for puerperal sepsis and for the mortality of childbirth from all causes—one up to the year 1880, and the other from 1881 onwards. In Table K the mean mortality has been separately set out. It will be noticed that in each chart at certain periods considerable deviation from the mean has taken place. It is possible that at these times some widespread influence may be at work to account for such variations, but that is a separate matter, which I propose to deal with in a subsequent communication to the Society.

In concluding my paper on the "Mortality of Childbirth" twelve years ago I said: "The reduction of puerperal mortality on any considerable scale is yet a dream of the future, and it must take years before that dream will be fully realised. Already encouraging signs are apparent, in so far that the rise in the death-rate from puerperal fever which has taken place during the last decade in the provinces has not attained to corresponding proportions in London. In London and the larger towns, where antiseptic measures are naturally more freely adopted, improvement may first be looked for, and that the provinces will shortly follow suit may be confidently anticipated."

The lapse of twelve years, and a study of the statistics of this additional period, has tended to confirm the impression to which I then gave utterance. It will be found that in London alone has any marked reduction, either in the deaths from accidents or from puerperal sepsis taken place. It would be interesting to have the data for Edinburgh and for Dublin for comparison with the whole of

Scotland and the whole of Ireland. I hope this may be supplied on a future occasion.

From the tables and charts now given the following conclusions are made:

(1) The total death-rate from childbirth has not diminished, either in England and Wales, in Scotland, or in Ireland, where it is abnormally high as compared with the other divisions of the kingdom, but in London it has declined considerably.

(2) The death-rate from accidents of childbirth has declined slightly in each division of the kingdom, but is abnormally high in Ireland, and in London has markedly diminished.

(3) The death-rate from puerperal septic diseases has, if anything, shown a tendency to increase in each division of the kingdom, but in London has been declining for at least the last decade.

Dr. Galabin said that he thought the statistics and charts in the paper were of very great value, and he agreed in the main with the conclusions drawn. But he thought that the third conclusion, that the death-rate from puerperal sepsis has, if anything, shown a tendency to increase in each division of the kingdom, was too pessimistic, and was not supported by the charts. On account of the change in practice commenced in 1881 in the Registrar-General's office, which had been mentioned in the paper, the figures before that date could not be justly compared with those after, since in the first year 14 per cent. was added to the mortality through the inquiries made, but the years in each series were comparable with each other. Up to 1881 there was no improvement; but from 1881 onwards the curve of mortality for England and Wales and Scotland, as well as that for London, showed a continuous downward tendency, as seen in Charts I, II, III, and VII, with the exception of a remarkable rise in 1893. The latter appeared to be due to the meteorological character of the year, which was marked by two prolonged droughts of several months, alternating with short periods of heavy rain. About three years ago he had prepared for an address to the Hunterian Society charts somewhat similar to those of Dr. Boxall's, but showing, not the absolute mortality, but its percentage above or below the mean, thus allowing better comparisons with the variations of other diseases. He had prepared also similar charts for erysipelas, septicæmia and pyæmia,

scarlatina, and acute rheumatism. The result was that for the 20 years 1881 to 1900 the mortality of puerperal sepsis in London began 40 per cent. above the mean of those years and ended 50 per cent. below it. This improvement was equal to that of other septic diseases not connected with parturition, and was exceeded only by the improvement in the mortality of scarlatina. For England and Wales, the mortality of puerperal sepsis began 16 per cent. above the mean of those years and ended 22 per cent. below it. There was thus a distinct improvement since 1880, which for the previous 25 years had been conspicuously absent, although it was not so great as might be desired, being rather less than half the improvement in septic diseases apart from the puerperium. It might be inferred that an improvement at least as much again might be expected if antiseptic midwifery were carried out as effectually throughout England and Wales as it is in London.

Dr. Griffith said that the subject of puerperal septicæmia could not be discussed too frequently so long as the mortality remained so high. It was obvious to everyone who was called into consultation in these cases that as a rule the disease was neither diagnosed nor was efficient treatment attempted until the patient was hopelessly septic and beyond the aid of successful treatment. As a rule, the symptoms were clear enough on the second day, and treatment to be effectual must be carried out at once. Dr. Boxall laid stress on the disastrous effects of salufer as a douche, but when we consider the little value of the douche as a routine treatment, we must conclude that there must have been some other cause at work. At Queen Charlotte's, where the number of deliveries reached 1500 a year, patients were frequently admitted in labour with infective vaginitis, and it was not always possible to disinfect the severe cases in time. Dr. Griffith asked Dr. Boxall if he met with the same difficulty, and, if so, how he had so successfully dealt with them.

Dr. Cullingworth said that he had on former occasions had opportunities of expressing his views on the undiminished puerperal mortality in this country and on its causes, and he would not now have risen but that such very pointed allusion had been made in the paper to the salufer period in the history of the general lying-in hospital. He would feel that he was lacking in moral courage if he did not thus publicly acknowledge that for the introduction of salufer he was responsible. The circumstances were these: There had been several instances in the hospital of corrosive sublimate poisoning, and though these had not been fatal he was anxious to find some efficient non-poisonous substitute for corrosive sublimate if it were possible for douching purposes. Salufer came with strong recommendation from Mr. Mayo Robson, who was relying upon it entirely in his operative work at Leeds. It was manufactured

by a firm at the head of which was his own old teacher in chemistry. Its composition was made no secret of, and its efficiency as a powerful antiseptic was borne witness to by men whom he knew and who had no purpose of their own to gain in testifying to its value. It was true that in the short period during which it was tried two fatal cases of sepsis occurred, and generally the hospital was less healthy than usual. He had no hesitation, under these circumstances, in abandoning the use of salufer and going back to corrosive sublimate, although he had then, and still have, grave doubts as to whether the occurrence of sepsis just at that particular time was really due to the introduction of salufer. Of course salufer itself could not carry the infection, and if it *was* the cause of the outbreak, it would only be so indirectly owing to the discontinuance of the douching with corrosive sublimate. He could not believe that possible. It would require a stronger faith in the virtues of antiseptic douching than he possessed. He knew that Dr. Boxall held the contrary opinion strongly, and, of course, absolute certainty in the matter was unattainable. The profession, and especially those members of it who were engaged in teaching practical obstetrics, could not be sufficiently grateful to Dr. Boxall for compiling, with great expenditure of time and labour, the very valuable charts and tables that he had placed before them in his paper. They provided material upon which others could build. The great value of the paper to his mind was that it once again emphasised the unpleasant fact that whilst, in the lying-in hospitals sepsis had, for all practical purposes, been eliminated, the prevalence of puerperal septicæmia in the country generally was just as great as ever. In other words, something was not as it should be, and he, for one, quite agreed with the position taken up by the President in his inaugural address. He believed that the great hope lay in the direction of better clinical instruction in midwifery both for medical students and for midwives. Nurses and friends might be at fault, and no doubt often were, but he was persuaded that only a part of the blame rested with them and with those who employed them. He should rejoice if the passing of the Midwifery Act, in which he was known to have been much interested, had the effect of indirectly calling attention to the conditions under which English medical students obtained their practical instruction in midwifery, and of bringing about a much-needed reform.

Dr. Purslow said he desired to add his quota of thanks to those of the other Fellows to Dr. Boxall for his most admirable paper. He thought that those engaged in teaching midwifery should impress upon their pupils the great importance of cleansing and disinfecting the vulva of the parturient woman, and he thought that this was a matter which was apt to be sometimes neglected in private practice.

Dr. Boxall, in reply, thanked the Society for the attention paid to his dry statistical paper. In reply to Dr. Galabin's criticism of the conclusion that the death-rate has, if anything, shown a tendency to increase in each division of the kingdom is not borne out by the evidence of the charts, he said that he hoped for the sake of humanity that Dr. Galabin would prove correct. It is certainly true that some fall in the death-rate has taken place during the last few years. But it is, unfortunately, equally true, as reference to the charts shows, that similar declensions in the death-rate have occurred on previous occasions, but that these declines have been followed hitherto by rises in virtue of which the average for the last 20 years or so has been raised above the average for the years before 1881 in each division of the kingdom. London, as pointed out in the paper, has formed an exception. Both Dr. Cullingworth and Dr. Griffith had criticised the evidence put forward in the paper as insufficient to prove the disastrous effect of douching with salufer. But the evidence of this, as pointed out in the paper, rests not solely on the mortality—2 deaths in 87 cases. This small number of fatal cases might be coincidences, and one patient (Number 17 in Appendix to Table B) certainly had been subjected to prolonged and unsuccessful operative measures prior to admission. But the other case (No. 18 in Appendix to Table B) was treated throughout in hospital, yet was attacked by and died from a severe and virulent form of sepsis. This evidence, as previously recorded in detail in the 'Transactions,' is borne out and fortified by the morbidity records, as evidenced by the temperature-charts for the same period. And this evidence most convincingly shows that the use of salufer as a douche, and as a douche only, was attended by the recrudescence of sepsis in the hospital, explain it as we may. For his own part, on this evidence, he concluded that such an antiseptic solution ought to be used as is capable of effectually and rapidly destroying septic material, and unless the external genitals be carefully washed beforehand with a similar solution, the routine employment of the douche during puerpery is liable, from the danger of unavoidably introducing septic material, to be attended with positive danger to the patient, and that under such circumstances its mechanical and ecbolic advantages may be more than counterbalanced by its want of sepsis-destroying power. He had always taught that all douching after delivery is positively dangerous unless properly performed with an efficient antiseptic, and for that reason should never be entrusted to a nurse unless properly trained. He fully coincided with the observation of Dr. Fowler concerning the unfortunate practice of patients in engaging monthly nurses without reference to their medical attendant. Personally he had often had occasion to combat the practice even among better circumstanced patients, and in con-

sultation he had come across nurses of the very worst type in attendance on the wives of members of the medical profession. He could fully confirm from his own experience what Dr. Griffith had stated. Advice in cases of puerperal sepsis is rarely sought till a fatal result is anticipated. Such cases are rarely reported to the authorities as long as the illness could by any possibility be regarded as due to anything rather than sepsis, and till the probability of a fatal termination had been confirmed by consultation. As confirmatory of this practice, he had been told by a medical officer of health for one of the home counties that in his district the Notification Act was practically a dead letter as far as regards puerperal fever, for the death returns as a rule exactly equalled the notifications for puerperal fever and in one quarter actually exceeded the number of notifications by one. Dr. Griffith had inquired how it was that they managed to exclude cases infected with gonorrhœa at the York Road Hospital. They, like Queen Charlotte's, admit single women for the first confinement. They do not exclude gonorrhœal cases, or even hope to do so, for they recognise that, owing to difficulty of diagnosis, it would be impossible. For instance, at the present time there is a patient in the hospital with no history or sign of purulent discharge. But her baby has had a virulent ophthalmia starting from the time of delivery. Labour was, unfortunately, too far advanced when she was admitted to permit of a douche being given before the birth took place. Recognising the futility of attempting to determine the presence of gonorrhœal and septic matter beforehand, they make a routine practice of giving a vaginal douche whenever possible before delivery and of repeating it after the placenta has come away, using for this purpose four quarts of 1 in 4000 sublimate solution at 110° F. before and the same quantity of 1 in 2000 sublimate solution at 115° F. afterwards. The child's eyes are cleansed and irrigated with 1 in 4000 sublimate solution immediately it is born. Under this treatment but rarely do ophthalmia cases occur, and never has he seen a case of sepsis in hospital which was attributable to gonorrhœa. It is satisfactory, and augurs well for the future, to find such a general consensus of opinion among Fellows of the Society as to the necessity of improving the practical training of the medical student in obstetric medicine and surgery. He hoped that at no distant date the examining Board would be prevailed upon to modify the regulations now in force which practically compel the student to do his midwifery before he has acquired a knowledge either of medicine or surgery. At present, no matter how effective the instruction in the methods of asepsis and in the use of antiseptics given in the surgical wards, the opportunity is lost to him of practically adapting such methods to his midwifery. As an examiner in midwifery for the Conjoint Board, he once asked

a candidate, "What do you know of puerperal fever?" and was met with the rejoinder, "Absolutely nothing at present, but I hope to do my fevers next year." A meeting of the examiners was held for the special purpose of urging on the authorities to alter the regulation allowing the candidate to present himself for examination in midwifery a year before medicine or surgery, but unfortunately nothing came of it at the time.

JUNE 7TH, 1905.

W. R. DAKIN, M.D., President, in the Chair.

Present—41 Fellows and 4 visitors.

Books were presented by the Société de Médecine de Rouen and by Dr. Cullingworth.

Charles John Nepean Longridge, M.D.Vict., F.R.C.S. Eng.; Martin James Richardson, M.B., C.M.Edin.; and William Robert Orr, M.D., were admitted Fellows of the Society.

Charles George Webster, Capt. I.M.S., L.R.C.P. and S. (Madras), Helen Mary Serjeant, L.R.C.S. and P.Edin. & Glas. (Hawkhurst), were declared admitted.

The following candidates were proposed for election:—Francis William Nicol Haultain, M.D.Edin., F.R.C.P.Edin.; Robert Patton Ranken Lyle, M.D.Dubl.

A CASE OF REPEATED TUBAL PREGNANCY.

By ALBAN DORAN, F.R.C.S.

A. D—, aged 32, was admitted into my wards at the Samaritan Free Hospital on February 3rd, 1903. She had been married for ten years and was the mother of three children; the youngest was 5 years old, and she had

never miscarried. Her last period occurred in the fourth week of November, 1902; on January 11th, 1903, there was a show of blood which continued for ten days with much pain. After ceasing for a few days it returned and continued until admission. She applied to Mr. Butler-Symthe at the hospital; he made out the above catamenial history, and found that she had been subject since the cessation of the period to severe attacks of dragging pain in the right iliac region. At times she felt faint, and she declared that she had experienced a severe attack of syncope on December 26th, followed by two more in the first week of January. The patient was examined by Dr. C. Hubert Roberts and myself and admitted into my wards.

I found out a family history of phthisis, and the patient had recently suffered from an acute pulmonary affection said to be "pleuro-pneumonia." Eight years before admission pelvic inflammation followed her second confinement, but there was no further history of pelvic disease.

The patient was pale and flabby and troubled with frequent cough. The mammæ were flaccid, the areolæ dark; no milk could be pressed out of the nipples.

The uterus was pushed somewhat to the left, anteverted, mobile, and a little enlarged. In the right fornix was a rounded swelling of the size of a walnut, easily defined above and below on bimanual palpation. It lay very close to the uterine fundus and was slightly tender. In the left fornix, which was free, strong arterial pulsation could be felt; much powdery dark blood came away from the uterus.

The urine on the day of admission showed a trace of albumen, which disappeared after a day's rest. The evening temperature rose to 100° in the mouth three times during the first week in hospital. There was dulness over the right subclavian region; râles and friction sounds were audible at the left base, and a few râles at the right base.

After nine days' rest the pulmonary symptoms had

greatly improved and the swelling in the right fornix had almost disappeared. The flow had already stopped for several days, and there was no more pulsation in the left fornix.

I discharged the patient, but kept her under observation. Severe pelvic pains were felt for three days after her return home; they then ceased, and the period appeared and continued perfectly regular and normal until December, 1903.

On December 17th the period set in when expected, but was attended by unusual pain. At first, for a day or two before the flow began, the pain was chiefly felt along the front of the right thigh, but such was the rule in this patient's case. Then it settled in the left side of the pelvis and apparently caused a bearing-down sensation in the rectum. Early in January, 1904, there were several attacks of vomiting, ascribed by the patient to exacerbations of the pain in the left side, which continued whilst the show of blood did not cease. She was readmitted under Dr. Hubert Roberts into the Samaritan Hospital on January 23rd; her cough was at the time very troublesome; but the sputum, though full of staphylococci, contained no tubercle bacilli. I examined the case with Dr. Roberts and found the uterus displaced to the right and forwards by a firm and rather tense swelling which occupied the left fornix and rose above the pelvic brim into the left iliac fossa. The urine was free from albumen, the pulse 90, and the evening temperature rose over 100°.

I kept the patient at rest for a fortnight; the cough diminished under suitable treatment. On February 6th I found that the swelling in the left iliac fossa was somewhat larger, but little or no blood came away. A few hours later pain set in and the show began to increase. On February 9th, as these symptoms grew worse, I operated. Chloroform was administered in preference to ether by Mr. Morley. On opening the abdominal cavity I separated some coils of small intestine and the lower end of the omentum from the internal genital organs, to

which they adhered by recent lymph. The omentum contained a very old, firm, dark-brown clot of the size of a cob-nut.

About four ounces of soft, dark-brown clot occupied Douglas's pouch. The left tube was the seat of recent gestation; I removed it, but could not clearly distinguish the left ovary. The right tube was abnormally thick and elongated, and its ostium much dilated. I removed it with the right ovary. The ligature cut through the tissues of the tube softened by inflammation, close to the uterine cornu. I covered in the exposed stump of the tube by sewing the serous coat over it.

On the seventeenth day after the operation the patient had a severe attack of sharp pain in the left iliac fossa, and felt the menstrual molimen. The temperature rose from 99·5° in the morning to 102° in the evening, and on the next day a severe attack of epistaxis occurred. No show was ever seen from the date of the operation until the patient's death from phthisis thirteen months later. In May, 1904, an attack of pain in the region of the right stump set in, accompanied by vomiting. There was no further pelvic trouble, and the patient did well until she had a severe attack of her pulmonary complaint, which proved fatal in March, 1905.

Pathological report of parts removed.

Dr. Cuthbert Lockyer has kindly prepared the following account of the appendages which I amputated at the operation:

"The specimen consists of the left Fallopian tube, to which is adherent a blood sac, and also the right Fallopian tube and part of the right ovary, with the intervening mesosalpinx.

"The left tube is normal in size at its uterine cut end, but from thence it gradually expands and finally communicates at its fimbriated extremity with an adventitious sac containing blood-clot. This sac so closely invests the

tube as to appear to fuse with its peritoneal coat. The fimbriæ of the abdominal ostium, however, are to be seen at the junction of the sac and the lumen of the tube. The sac measures two and a half inches in its long diameter and two inches in its vertical measurement. It is torn and shreddy on its front aspect, and to its internal walls blood-clot is adherent. Under the microscope a portion of this clot is seen to contain degenerate chorionic villi.

"This is an example of peritubal hæmatocele.

"The right tube measures three and a half inches in length. It is not increased in thickness, and shows no naked-eye evidence of rupture. There is some old blood-clot adherent to its fimbriated end and also to the meso-salpinx between the tube and ovary. In this clot no chorionic villi have been detected. The fimbriæ of the tube appear normal on microscopic examination. As free blood was found in the peritoneal cavity at the time of operation, the clot adherent to the tube may have been the result of rupture of the left-sided hæmatocele. Serial sections have not been made, but as far as the pathological investigation goes, it affords no proof that this tube was the seat of gestation. The evidence must rest on the clinical facts alone.

"The right ovary contains a fairly recent corpus luteum, and adherent to this organ is a layer of organising blood-clot and granulations."

The interesting short communication read by Dr. Purslow at the last meeting of this Society* induced me to submit the above report to your consideration. Tubal pregnancy occurred twice in one patient under Dr. Purslow's care, and on both occasions diagnosis was verified at an operation. In my case some may think that the first or right-sided pregnancy remains hypothetical, but the recurrence of tubal gestation in one patient has been repeatedly proved. Authentic cases were reported in a paper read by Dr. Lewers before the Society two

* "Repeated Tubal Pregnancy; Abdominal Section on Each Occasion."

years ago* and other cases were recorded by several Fellows of the Society in the discussion on that paper. Ernst Runge's† valuable statistics of ectopic gestation, published about the same time, include references to papers on repeated tubal pregnancy (Weil and others).

I may be permitted to mention Lesse's case,‡ published just a month ago, when Dr. Purslow's communication was read. Lesse removed a gestation sac of the right tube, saving the ovary. A year later pregnancy developed in the stump of the right tube, involving the corresponding uterine cornu. It ruptured at the sixth month; Lesse extirpated the sac and found that the corpus luteum lay in the left ovary, not in the right, which he did not remove at the first operation. This case should be remembered, because the question of the removal of a sound tube, fellow to a tubal sac, to prevent a future tubal gestation was raised in the discussion on Dr. Purslow's paper; but Lesse's experience shows that amputation of a tube is no insurance against pregnancy in its stump.§

I must not wander far, however, from the condition observed in my own patient, where pregnancy recurred not in the same but in the opposite Fallopian tube. The history, and the appearance of a very distinct swelling to the right of the uterus which ultimately underwent great reduction in size under my own observation, warrants

* "Repeated Ectopic Gestation in the Same Patient," 'Trans. Obstet. Soc.,' vol. xlv, p. 418.

† "Beitrag zur Aetiologie, Symptomatologie und Therapie der Extrauteringravidität," 'Archiv f. Gynäk.,' vol. lxx, 1903, p. 690.

‡ "Demonstration einer geplatzten interstitiellen Schwangerschaft in 6 Monate," 'Centralbl. f. Gynäk.," No. 18, 1905, p. 554. The patient recovered.

§ We all know that the stump of a Fallopian tube may function perfectly as an oviduct. See author, "Pregnancy after Removal of both Ovaries for Cystic Tumour," 'Trans. Obstet. Soc.,' vol. xliv, p. 231; Cripps and Williamson, "Two Cases Involving the Question of the Site of Impregnation," *ibid.*, vol. xlvi; also Meredith, "Pregnancy after Removal of Both Ovaries for Dermoid Tumour," 'Brit. Med. Journ.,' vol. i, 1904, p. 1360. Lesse shows us that an ovum may become implanted in a tubal stump.

the diagnosis of right tubal pregnancy a year before I operated for gestation in the left tube. The fact that no trace of any product of conception could be detected in the right tube is no proof that it was not the seat of pregnancy checked at an early stage many months before it was amputated. Clinical evidence has shown that when a gravid tube discharges an early ovum it soon resumes its normal appearance; indeed, it may itself become the seat of a second pregnancy.

Lastly, as already observed, some authorities are of opinion that when a tubal sac is operated upon, the opposite Fallopian tube should be amputated, even when healthy, lest it might become the seat of another abnormal pregnancy. I question, however, whether this practice be justifiable. I know of three cases of normal uterine pregnancy in patients from whom I had previously removed a gravid tube.

Case 1.—L. B—, aged 22. Left tube removed October 26th, 1897. Child born early in 1899. Dr. J. H. Rodgers, of Cardiff, operated upon it for imperforate anus.

Case 2.—C. G—, aged 24. Right tubal mole displaced to left side of uterus, removed December 2nd, 1899.* Female child born at term December 17th, 1900.

Case 3.—E. F—, aged 29. Removal of left tubal sac displaced to front of uterus, July 23rd, 1901.† Female child born August 15th, 1902.

On the strength of this experience I am not in favour of sacrificing a normal tube.

* "Tubal Mole; Fœtus three-quarters of an inch in length," 'Trans. Obstet. Soc.,' vol. xlii, p. 134.

† "Tubal Gestation Sac entirely anterior to the Uterus; Operation; Recovery," 'Lancet,' vol. ii, 1901, p. 723. The above hitherto unpublished after-histories of Cases 2 and 3 are instructive. In some cases of repeated tubal gestation where no operation was undertaken on the first occasion the second pregnancy may have been seated in the same tube displaced to the opposite side.

Dr. Boxall said that in his experience he had not found removal of a tubal gestation sac followed by a second extra-uterine fœtation, but he had known a normal pregnancy and delivery take place about a year after operation.

Dr. Herbert Spencer said he had operated on three cases of bilateral tubal pregnancy, and in two others had observed intra-uterine pregnancy after tubal gestation.

Mrs. Scharlieb mentioned a case of ruptured ectopic gestation operated on at the Royal Free Hospital in July, 1904. The patient is now about five months pregnant.

Lt.-Col. A. J. Sturmer, I.M.S.—A pregnant Hindu was admitted into the Government Maternity Hospital, Madras, for incisional hernia. She had been operated on some time before by Col. Branfoot, who had removed an ovarian tumour of the left side. At the time of the second operation it was found that the right tube was firmly embedded in the cicatrix, so that it was impossible for the spermatozoa to find an exit through the fimbriated end. In the case of ectopic gestation occurring twice in the same woman (a report of which was made to the Society), it was seen at the time of the first operation that the tube on the opposite side was very red and swollen, but the tube was left. She returned a year or more later, and it was found that pregnancy had occurred in this affected tube; it would probably have been safer to have removed the tube at the time of the first operation.

Mr. Alban Doran, in reply, said that every conceivable variation had been observed in cases of tubal pregnancy—repeated in the opposite tube, repeated in the same tube, simultaneous in the right and left tubes, simultaneous tubal and uterine pregnancy, and lastly gestation in a tubal stump. Still, the evidence of those who joined in the discussion supported his opinion, based on the after history of three cases, that when pregnancy occurred after the removal of a tubal gestation sac it was as a rule normal, hence when the sac was removed it was not justifiable to amputate the opposite tube.

ON THE APPEARANCE OF THYROID-LIKE STRUCTURES IN OVARIAN CYSTS.

(With Plate VI.)

By R. Hamilton Bell, M.B., F.R.C.S.

Two cases of this rare phenomenon have occurred within the last few years at St. Thomas's Hospital. I am in-

debted to Dr. Walter Tate for permission to bring them before the Society.

The cases had no particular interest from a clinical standpoint. They were regarded before operation as examples of ordinary ovarian cysts, and it was only microscopic examination which led to the discovery of the peculiar character of the growths.

E. B—, aged 32, was in hospital October, 1902. She was a married woman, and had five children. Menstruation had been irregular since January, 1902, and nine weeks before admission there were severe pains, and the passage of clots, possible a mole.

A month later there was severe hæmorrhage, and this recurred a week before admission.

Concurrently with the menstrual disturbance an abdominal swelling was noticed, which at times was tender. On examination the swelling was seen to be centrally situated, rounded, freely mobile, and fluctuating. It reached to the level of the umbilicus. *Per vaginam* it could be felt in front of the uterus and depressing the anterior vaginal wall.

The uterus was first curetted, and then the abdomen opened and a cyst of the left ovary removed. A small cyst in the right ovary was punctured, and the ovary left *in situ*.

The cyst removed was handed to me for examination. It was multilocular. The largest loculus had been opened by trocar and cannula during the operation. It contained 1½ pints of dark reddish-brown fluid and some brownish blood clot. The specific gravity of the fluid was 1035, and it became solid on boiling. The cyst wall was thin and smooth, with some blood-stained patches, but with no intra-mural hæmorrhage. The rest of the tumour consisted of a number of small cysts containing fluid of varied consistence, and also a small mass of firm tissue, about the size of a walnut, which I thought would prove to be more or less solid adenomatous growth. It was sent to the clinical laboratory for microscopical examination, and

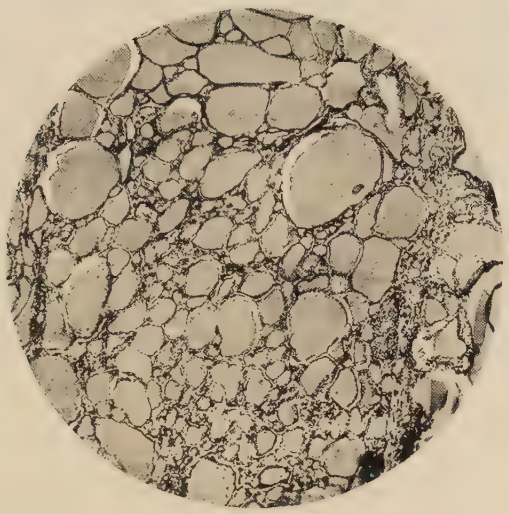
the report returned was "Thyroid disease: ? secondary thyroidal carcinoma."

A careful examination of the patient's neck was made, but nothing abnormal discovered. Convalescence was uninterrupted, and the patient was allowed to leave the hospital, having been warned to return at once should any abnormal symptoms occur, especially in the neck or abdomen.

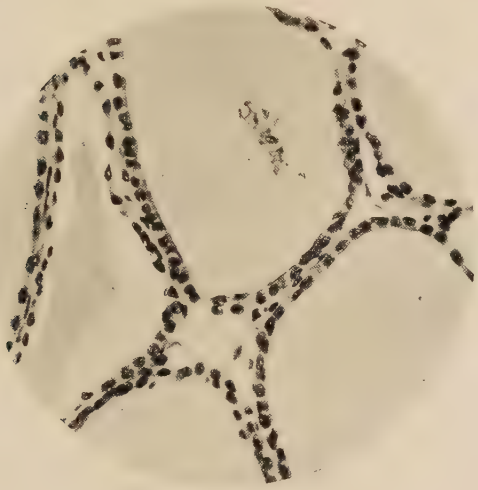
The second case occurred two years later, November, 1904. M. L—, single, aged 52. Menstruation regular till five years before admission, when the menopause occurred. She complained of no symptoms beyond increase in the size of the abdomen, and constipation. The tumour was larger than in the other case, reaching well above the umbilicus. Ovariotomy was performed, and a loose twist of the pedicle was noted. It was a multilocular ovarian cyst of the right side, and the largest loculus contained eight pints of dark chocolate fluid. As in the other case, there was some staining of the cyst wall, but no intramural hæmorrhage. I noted numerous deposits of calcareous particles in the cyst wall, the largest the size of an incisor tooth. At the base of the cyst, near the pedicle, was a congeries of small cysts, and another more solid mass, very similar to the mass noted in the first case, but containing here a few calcareous particles. The report from the clinical laboratory was again: "Tumour suggests a metastatic thyroid carcinoma."

In this case the neck was distinctly enlarged, especially on the right side. The enlargement was soft, and had no definite outline, but suggested a goitre. The patient stated that her mother had a similar enlargement. Above this soft enlargement there was on the right side, at the level of the thyroid cartilage, a small harder lump, which moved on deglutition. It appeared quite separate from other structures in the neck. It had not quite the consistence of an enlarged gland. The possibility of its being an accessory thyroid suggested itself.

The question of an exploratory operation upon the



Section under low power, from case occurring in 1902.



Small portion under high power to show flat cubical epithelium, from case occurring in 1904.

Illustrating Dr. Hamilton Bell's communication on Thyroid-like Structures in Ovarian Cysts.

Adlard & Son, Imp.

neck was discussed, and it was clear that the subsequent history of the previous case was of importance. I succeeded with some difficulty in tracing her to Peterborough, and learnt in a letter from her husband that her general health had steadily improved during the last two years, that she had at times had a certain amount of pain in the abdomen, but that the occasions were less frequent now than formerly, and that she had had no trouble whatever in her neck. The second patient was then allowed to leave the hospital, but is to be kept under observation.

Microscopical appearances.—These may be shortly put; they are those of the thyroid gland. In the first section may be seen a large number of circular or rounded spaces, very varied in size, and for the most part completely filled with colloid material. The spaces are lined with a flat cubical epithelium. In a few of the smaller spaces the flat epithelium is seen without the colloid material. At places there is a certain amount of connective tissue with some colloid material in the lymph spaces, but for the most part the connective tissue is sparse.

On the outer surface of the specimen a distinct columnar epithelium can be seen at places, and especially one small patch, almost separate from the main mass of the section, which is lined throughout by columnar epithelium, but contains in its interior several small spaces holding colloid material, and lined by flattened cubical epithelium.

In the more recent section the appearances are very similar to those already described, but the colloid material is more shrunken, and does not fill the spaces. These are however lined with the typical flat epithelium. The slight difference is probably due to different methods of preparation. There is much more connective tissue in this section, usually of a loose character. As before, some colloid may be seen in the lymph spaces.

The number of cases in which this thyroid appearance has been observed in the ovary is comparatively small;

probably not more than half a dozen have been recorded. It is difficult to come to a conclusion as to the proper explanation of the phenomenon. I have already mentioned in recording the cases that on both occasions the report sent up to the ward from the clinical laboratory suggested the possibility of the growth being secondary to a primary carcinoma of the thyroid gland. The subsequent history of the first case, already referred to, renders this suggestion most improbable. But while it seems clear that the growth is not a metastasis from a thyroid carcinoma, it may possibly be secondary to a simple goitre, or even arise from a normal thyroid gland. Cases have been recorded in the 'Transactions of the Pathological Society,' in which extensive secondary growths have arisen in the calvaria, having their origin not in a carcinoma, but in a simple parenchymatous enlargement of the thyroid. I refer to the cases of Morris (1) and Coats (2). Moreover, Oderfeld and Steinhaus (3) have stated that "normal human thyroid may grow into blood-vessels, and thus give rise to osseous metastases of apparently thyroid tissue."

So far as I am aware there is no recorded case of a secondary growth in soft parts arising from a simple goitre; but if we are to accept the view that normal thyroid tissue may enter the blood stream, there seems to be no reason why it should not reach the ovary. This is the explanation of the phenomenon put forward by Karl Kretschmar (4) in his latest paper. Previously he had expressed the opinion that these tumours were endotheliomata, a view that has been adopted by others. It has also been suggested that they were growths of a teratomatous nature. Neither of these two latter explanations appeals to me, nor indeed am I convinced that the appearances, though so similar to those of the thyroid gland, are really due to anything more than a peculiar colloid degeneration of an ordinary cystic adenoma of the ovary. The flat cubical epithelium may be produced by the pressure of the secreted colloid material. Edmunds (5) has shown that in Graves' disease the colloid in the vesicles

has partly or wholly disappeared, and that the secreting cells instead of being cubical are columnar, and that these changes are practically identical with those of compensatory hypertrophy as seen in animals after partial removal experiments. This seems to indicate that the flat thyroid epithelium becomes columnar as soon as relieved from the pressure of the colloid material. It is therefore not very fantastic to suppose that where an extensive colloid degeneration occurs in the ovary the epithelium may become flattened merely from pressure. Through the kindness of Dr. Powell White my attention was drawn to a section of a kidney which was very similar to those I have described in this paper. It was taken from a shrivelled and disorganised organ, the change in the kidney being no doubt due to complete obliteration of the ureter. The thyroid was normal, and it is hard to believe that the thyroid appearances in this disorganised kidney were due to any metastasis of the thyroid gland, or to any active tumour formation, or indeed to anything else than a colloid degeneration. This kidney section therefore tends to confirm the view that the thyroid-like structures in the ovary are really due to a degenerative change. I will, however, conclude with a summary of the various possible explanations of this rare occurrence:

(1) That it is a metastatic growth from a primary thyroidal carcinoma.

(2) That it is a secondary growth from a normal thyroid gland, or from a simple goitre.

(3) That it is a growth of teratomatous nature.

(4) That it is an endothelioma.

(5) That it is a peculiar colloid degeneration of an ordinary cystic adenoma of the ovary.

As indicated above my own inclination is to accept, tentatively at least, the last of these suggestions, but I bring forward the specimens in the hope that some Fellows of wider pathological and clinical experience may throw fresh light upon them, and perhaps definitely determine their pathological position.

References.

(1) 'Path. Soc. Trans.,' xxxi, 1880.
(2) 'Path. Soc. Trans.,' xxxviii, 1887.
(3) 'Central f. Path.,' Bd. xii, 209, 1901.
(4) 'Monat. f. Geburt. und Gyn.,' Bd. xix, 389 and 546.
(5) 'Lancet,' May 11, 18, and 25, 1901.

Accompanying this communication are :

(1) Sections of the ovarian growths, and of the kidney mentioned in the text.

(2) Microphotographs of the ovarian sections.

Dr. Williamson quite agreed with the conclusion arrived at by Dr. Bell, that in many cases the resemblance to thyroid tissue was merely the result of pressure exerted by colloid contents in the smaller loculi upon the columnar epithelium of an adenoma of the ovary. But, at the same time, he thought that the question of a teratomatous origin in some of these cases must not be too lightly dismissed. He had that afternoon examined sections of a cystic teratoma of the ovary, and had found structures almost identical with those exhibited by Dr. Bell. In this case the presence of skin, bone, and nervous tissue in the same cyst rendered it quite possible that the structure was true thyroid glands. It was no uncommon thing for a pseudomucinous cyst-adenoma and a teratomatous cyst to be found in one ovary, the two frequently grow together and form one tumour, the teratoma sometimes becoming included in the cyst-adenoma. It is possible, although the absence of other teratomatous elements renders it improbable, that Dr. Bell's specimens may have had their origin in this way. Should Dr. Bell's sections be referred to the pathology committee, he would ask permission to submit his own specimens at the same time.

(Permission was subsequently granted by the President.)

UTERUS BICORNIS.

Shown by Mr. Herbert J. Paterson.

Mr. Herbert Paterson showed a specimen of bicornute uterus which he had removed from a single woman aged

26, an inmate of an inebriate home. For three months before admission into the London Temperance Hospital the patient had been losing blood with passage of clots accompanied by pain which at times was of such severity that she was confined to bed. On examination, a rounded swelling was felt to the right of the uterus. A sound passed backwards and to the left 2½ inches. A diagnosis of ovarian cyst was made. At the operation a bicornute uterus was found, the left horn of which was situated partly between the layers of the mesosigmoid. There was a double hydrosalpinx and much matting of the appendages. Supra-vaginal amputation of the uterus was performed, the matted appendages being removed *en masse*. The vagina was divided by a complete septum which was not discovered until after the operation.

The points of interest in the case are the rarity of the condition and the difficulty in diagnosis. The uterus was removed as being the easiest way of getting rid of the matted and adherent appendages.

The connection of this developmental defect with the mental aberration which led this woman to become a confirmed inebriate at such an early age is a question of interesting speculation. The patient made an uninterrupted recovery.

Mr. Alban Doran referred to an article prepared by Dr. Cuthbert Lockyer and himself, which appeared in the 'Journal of Obstetrics and Gynæcology of the British Empire,' for March, 1905. It was entitled "Two Cases of Uterus Septus Unicollis, both associated with Fibromyoma," and included reports of a large number of cases which proved that diagnosis of bifid uterus was seldom easy and sometimes impossible.

Dr. Heywood Smith asked if a thorough examination had been made prior to operation, and if so, whether one original track was larger than the other, and whether the uterine sound had been used.

A "GRIP-EYED" NEEDLE.

Shown by Mr. Herbert J. Paterson.

Mr. Herbert Paterson showed a needle which he had designed to obviate the inconvenience and delay caused by the accidental unthreading of needles during suturing. It may be conveniently termed a "grip-eyed" needle, and is especially adapted for performing continuous suture. By pulling the suture firmly into the extremity of the eye furthest from the point of the needle the silk is firmly gripped so that it cannot slip out. This form of eye can be adapted to any pattern of needle.

ON THE ANATOMY OF AN INFANT PRESENTING SOME RARE DEFORMITIES.

(With Plate VII.)

By Charles Singer, M.B., B.Ch.Oxon., M.R.C.S.Eng.,
Resident Obstetric Officer, St. Mary's Hospital.

(Communicated by Dr. M. Handfield Jones.)

On April 23rd, 1905, there was born, in the maternity district served by St. Mary's Hospital, an infant in which were combined a number of curious malformations, most of which can be explained as due, in some degree, to an arrest of development.

The child took the breast well, and passed both urine and fæces freely. Soon after birth, however, it began to waste, and died when 14 days old.

The parents of the child were normal. The mother was aged 25, in good health, and had borne one normal child two years earlier. She stated that she was advanced nine full months in pregnancy at the time of the birth of the present

Illustrating Dr. Singer's case of an Infant presenting some Rare Deformities.

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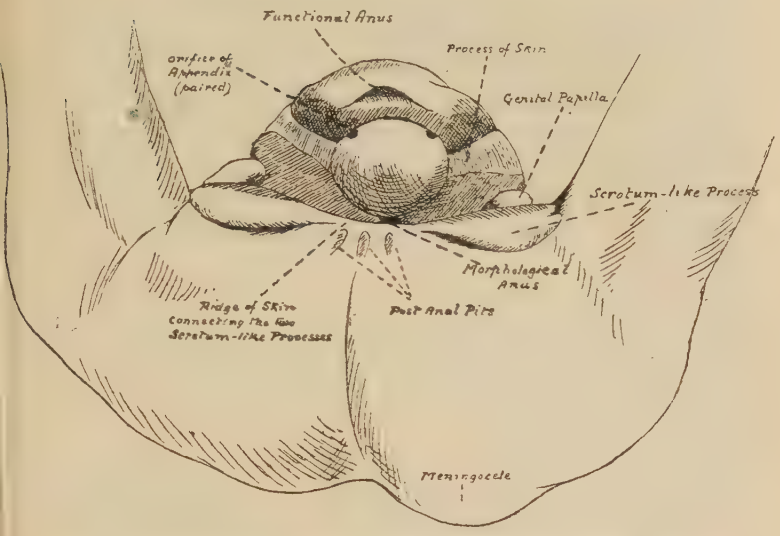


FIG. 1.—Structures in perineal region, viewed from below. Thighs semi-flexed.

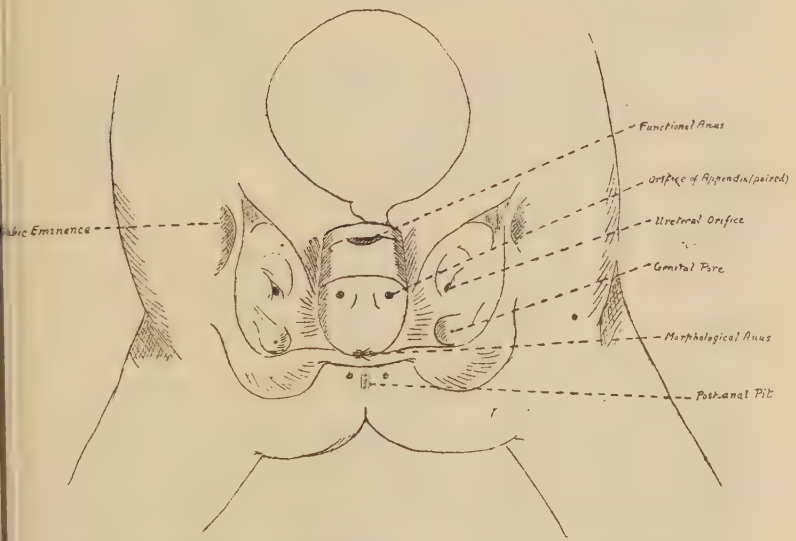


FIG. 2.—Lower abdomen from in front and below. Semi-diagrammatic to show relations of orifices.

child. No history was obtained of previous miscarriages or of antenatal frights or injuries.

The body came into my hands the day after death. It was immediately injected from the thoracic aorta with a solution of 40 per cent. formalin, followed some hours later by carmine suspended in gelatine. On subsequent dissection the body was found to present some anatomical relations of interest in addition to the more obvious malformations.

I. *General description and external appearance.*—The body was 10½ inches long from crown to perinæum, and 16 inches in its full length, weighing at death 5¾ lbs. The appearance of the head, thorax, and upper limbs presented nothing noteworthy.

Anterior abdominal wall.—In the lower part of the abdomen there was a low, circular, conical projection covered by a reddish mucous membrane-like pellicle, from a round area, in the upper part of which sprang the umbilical cord. This sloughed off on the fifth day, and there was visible only its area of previous attachment (Plate VII).

On either side of this rounded area was situated a semilunar scrotum-like process of corrugated skin (Plate VII and fig. 2), surrounding a pendant-shaped granular area (Figs. 1, 2, and 4), in which opened the ureteral orifices. Below these ureteral orifices, but surrounded by the scrotum-like processes of skin, there was to be seen on each side a little pigmented papilla which I have named the "genital papilla" in the drawings. This papilla concealed the minute genital pore situated on its lower and inner side (Fig. 2).

Below the low, rounded conical area above described, and almost separated from it by two processes of skin nearly meeting in the middle line, was a large cylindrical process covered with dark-red mucous membrane, and hanging down between the thighs. From an opening in the upper part of this process, and situated therefore on the anterior surface of the body, meconium and, later, fæcal substance

freely passed. This opening I have labelled in the drawings, the "functional anus" to distinguish it from the true or "morphological anus," which was also present.

Perineal region.—On the truncated end of the process just described were situated two additional orifices (Figs. 1 and 2) opening, as subsequent dissection showed, each into a little blind appendix-like sac (Figs. 2–5). Behind the

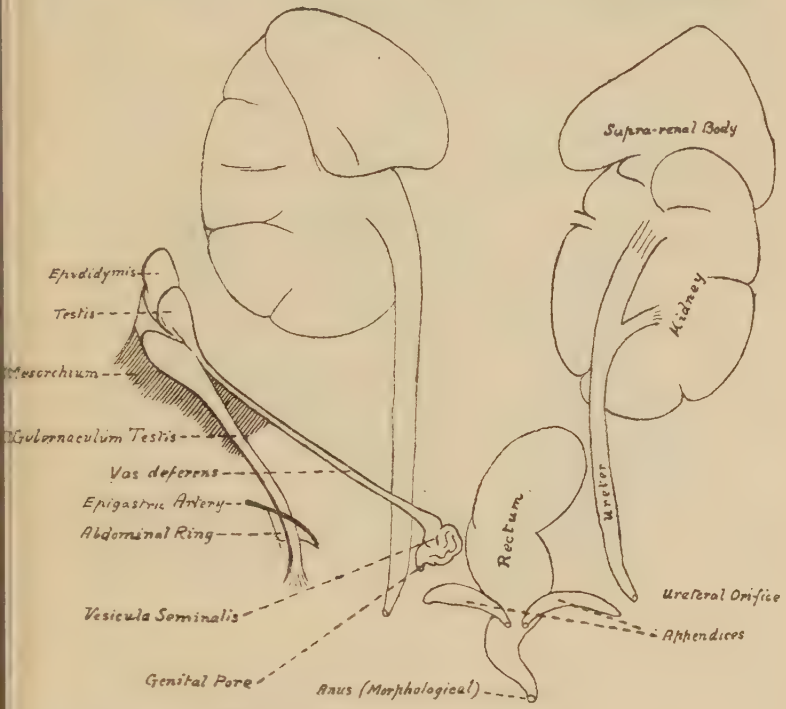


FIG. 3.—Urino-genital system, etc.

large process bearing these orifices the scrotum-like appendages were connected together by a fold of skin, in the front part of which was situated an orifice which I describe as "morphological anus" (Figs. 1–3). Behind this orifice and in the skin forming the contour of the buttock were a median and two lateral post-anal pits (Fig. 2).

No external testes were present.

The other obvious external deformities were :

(1) Very marked talipes varus on both sides.

(2) Congenital dislocation of the hip-joint on both sides.

(3) A lumbar spinal bifida, the imperfection affecting chiefly the left side of the spinal column.

(4) A corresponding meningocele in the left lumbar region (Fig. 1).

II. *Urino-genital system* (Fig. 3).—The ducts and

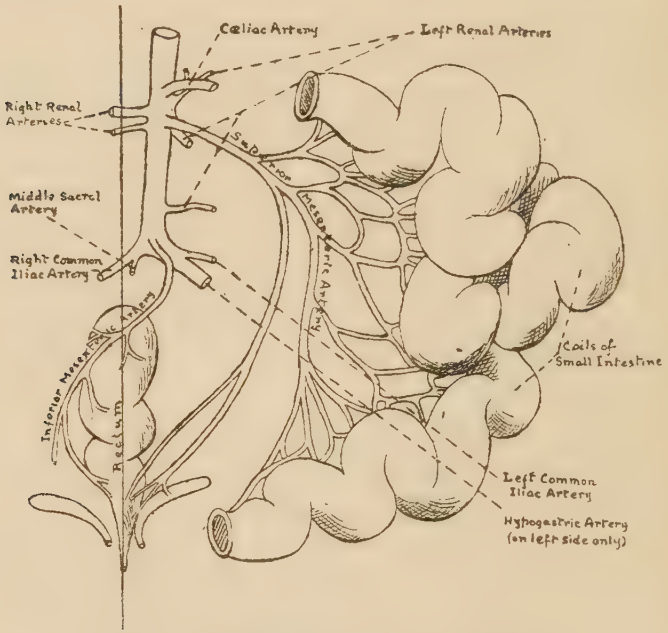


Fig. 4.—Visceral branches of abdominal aorta.

orifices of the urinary and the genital systems were entirely separate from each other, and from their fellows of the opposite side.

The kidneys were normal in appearance, but the left was situated somewhat lower than the right, and the left ureter came off from the front rather than from the inner side of the organ. The wide ureters passed downwards into the pelvis to open by separate orifices in the granular

areas on either side of the central conical projection, which represented, doubtless, the extroverted bladder. The ureters were crossed just before their termination by the vasa deferentia which opened at the genital pore below and mediad of the ureteric orifices (Figs. 2 and 3). The genital glands, which were microscopically unmistakably testes, were each suspended from the posterior abdominal wall by a well-marked mesorchium, and

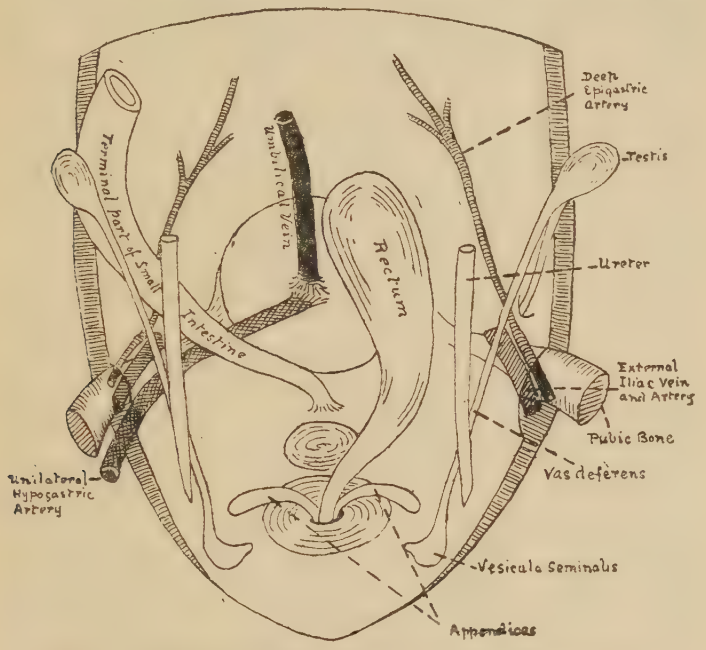


FIG. 5.—Anterior abdominal wall, from behind. Diagrammatic.

each in the undisplaced condition overlaid the lower pole of the corresponding kidney. At the upper pole of each testis was situated an epididymis, while from the lower pole of each were given off two structures.

(1) A cord which passed downwards and inwards, to lose itself by piercing the abdominal wall in the region of the scrotum-like processes of skin, bearing the usual relation of the spermatic cord to the deep epigastric

artery (Figs. 3 and 5). This structure was doubtless the gubernaculum testis.

(2) A duct, the vas deferens, which passed downwards and inwards, crossed in front of the ureter, and dilated just before its termination at the genital papilla, into a retort-shaped mass, the "vesicula seminalis."

There was no trace of an anterior wall to the bladder, nor was there any urethra or penis. The genital papillæ and the scrotum-like processes of skin surrounding them were the only representatives of the external genitals. The failure to meet in the middle line of the two sides of the urino-genital systems was thus complete.

III. *Alimentary system.*—The mesentery, instead of being attached to the posterior abdominal wall along a line stretching obliquely from side to side, was attached along an almost vertical line running from the anterior surface of the left kidney down into the pelvis.

The stomach and duodenum were normal in form and position.

The functional part of the alimentary canal ended at the "functional anus" on the anterior surface of the truncated process previously described. This part of the intestine showed no trace of division into large and small bowel, but was smooth throughout, fairly uniform in calibre, and showed no trace of longitudinal bands or of sacculations. The gut was freely movable, and provided with a wide mesentery from the duodenal-jejunal junction onwards, being attached to the anterior abdominal wall only for a very short distance before it opened at the functional anus (Fig. 5). There was thus no trace of any ascending, transverse, or descending colon, nor of a lesser peritoneal sac. There was not present in the abdomen any diverticulum, or other structure that, by its connection with the gut, could be interpreted as a cæcum or appendix, nor was there any trace of a Meckel's diverticulum, unless the opening spoken of as the "functional anus" be regarded as a persistent patent diverticulum of this sort.

This "functional" portion of the alimentary tract was

supplied entirely by the superior mesenteric artery (Fig. 4), and is, presumably, to be regarded as representing only the small bowel. In addition to this functional alimentary tract there was a median blind sac, about two inches in length, having the general appearance of being of the nature of intestine, which ended at the "morphological" anus. This viscus is marked "rectum" in Figures 3 and 5, and was filled with a quantity of caseous-looking material. Microscopically the "rectum" was found to have the typical structure of large intestine, being lined with mucous membrane provided with the characteristic crypts of Lieberkuhn.

The rectal or colic character of this organ is confirmed by the fact that it was supplied by the inferior mesenteric artery (see Fig. 4). The muscular walls of the "rectum" were arranged with the circular layer inside and the longitudinal layer outside. There was, however, no trace of the separation of the latter into bands. Closely applied to this "rectum" on each side was a small body like a vermiform appendix, opening externally by its own orifice. Each of these appendix-like bodies was provided with a little mesentery of its own, and the two opened symmetrically on the truncated summit of the large anus-bearing appendage previously described, their orifices being situated between the true and the functional anuses. These appendices were supplied by blood from both the superior and inferior mesenteric arteries. Microscopically their structure was identical with that of the "rectum," first described, being lined by mucous membrane provided with crypts of Lieberkuhn and covered by an internal circular and an external longitudinal muscular coat. Their lumen was filled with epithelial *débris*. I am unable to suggest an homology for these little appendices, their paired character prohibiting the comparison with the appendix vermiformis, which the form, structure, and blood-supply might suggest.

IV. *The vascular system* presented the following abnormalities (Fig. 4) :

(1) Multiple renal arteries were present on each side. On the right side the abdominal aorta gave off two and on the left side three renal vessels.

(2) The superior mesenteric artery, soon after its origin, gave off a vessel, which passed down into the pelvis and supplied the two little "appendices" and perhaps the "rectum" near to its termination at the morphological anus.

(3) An inferior mesenteric artery was given off from the anterior surface of the aorta very near to its bifurcation. This vessel was used up almost entirely for the supply of the rectum, but gave small branches to the paired appendices.

(4) The aorta, instead of bifurcating into two equal halves, divided into common iliacs, of which the left was about four times as big as the right. *From the left alone* was a hypogastric artery given off so that this vessel was a unilateral one.

V. *The osseous system.*—The fœtus was not dissected fully enough for the osseous deformities to be fully made out. A description of them may perhaps form the subject of a subsequent communication.

The following abnormalities were, however, evident:

(1) The pubic symphysis was absent, the innominate bones being widely separated from each other anteriorly. A "pubic eminence" (Fig. 2) could, however, be felt in the lower part of the abdomen on each side, the bones thus projecting being connected together across the middle line by a fibrous band running in the anterior abdominal wall.

(2) The laminæ of the lumbar and sacral vertebræ were imperfect especially on the left side, and through the imperfection there projected a meningocele. Fluctuation could during life be made out between this meningocele to the anterior fontanelle.

(3) Both hip-joints were congenitally dislocated.

(4) There was an extreme degree of talipes varus on both sides, so that the soles of the feet looked almost directly upwards.

Conclusion.—It will be seen that while many of the

most marked malformations present in this case may be explained as due either to (1) failure of the splanchnopleurs to meet in the middle line, producing an extreme extroversio vesicæ (urino-genital malformations), or as due to (2) neural or neuro-trophic causes having their incidence in lesions or deformities of the spinal cord resulting from the spina bipida (deformities of the lower limbs, dislocation of hip-joint and talipes, non-descent of testis) or, as due to (3) a combination of the causes enumerated under 1 and 2 (absence of symphisis pubis, absence of penis), there yet remain some abnormalities which it seems impossible to explain on these grounds. These are: (1) Absence of colon and separation of "rectum" from small intestine; (2) unilateral character of the hypogastric artery; (3) the presence and nature of the little, paired, appendix-like bodies.

On these points suggestions would be of especial interest.

RUPTURED INTERSTITIAL PREGNANCY.

Shown by Dr. Russell Andrews.

M. K—, aged 29, was admitted into the London Hospital on April 6th, 1905. She had had one child seven years ago, and one miscarriage four years ago. Menstruation had been regular up to April, but on admission a period was six days overdue. A few hours before admission she was suddenly seized with acute pain in the abdomen, which caused her to vomit and faint.

She was very anæmic; pulse 104. The abdomen was somewhat distended, and there was tenderness and slight resistance over the suprapubic region. No lump could be felt in the abdomen. *Per vaginam* the cervix was found to be soft, and the body of the uterus definitely enlarged. No swelling could be felt, but there was a feeling of resistance in the left side of the pelvis. There was no blood in the vagina.

I diagnosed internal hæmorrhage from a pregnant tube

and opened the abdomen at once. There was a large quantity of fresh blood in the peritoneal cavity. Both tubes were found to be normal, but on pulling the uterus up a cavity from which blood was flowing freely was found in the left cornu of the uterus. This cavity was large enough to admit the tip of one's thumb. I removed the uterus by supra-vaginal amputation, leaving both ovaries behind, and filled up the abdomen with saline solution. The patient made a good recovery.

My object in showing this specimen to-night is to obtain an expression of opinion as to whether I did right or not. Would it have been better to have excised the cornu, in the way that one does sometimes in cases of pyosalpinx, cutting out a wedge-shaped piece and sewing together the resulting raw surfaces ? The idea did not occur to me until too late. I have looked up the subject since and found that such treatment has been carried out by at least three operators.

Otto Engström (1) removed a dead fœtus, nine centimetres in length, from an unruptured cavity in the right cornu, and sewed up the uterus with catgut. The patient made a good recovery.

Peter Tytler (2), in 1897, found " a rent in the fundus of the uterus on the right side, extending from the middle to the origin of the right Fallopian tube. The length of the rent was nearly two inches, opening into a spherical cavity filled with fibrin." He cleared out this cavity, closed the rent with four fishing-gut sutures, and removed the right ovary and tube. The patient did well.

Koblanck (3), in 1900, recorded a case in which he excised the ruptured cornu and then stitched the uterine end of the tube to the wound in the uterus, in a case of early interstitial pregnancy.

Clarence Webster (4) suggests that such treatment might be adopted, but does not quote any cases of it having been done.

There would not appear to be the same risk of the formation of a hæmatoma as there is after a myomectomy,

and the bleeding ought not to be more difficult to stop than in Cæsarean section. In the only other case of interstitial pregnancy that I have operated upon myself this method of treatment would have been impracticable on account of the large size of the cavity. If, however, excision of the sac is ever to be advised, I think the case that I have just recorded would have been a most favourable one for its adoption.

I should like to hear the opinions of Fellows as to whether it would have been good surgery to have excised the cornu, and whether such treatment would have been likely to lead to trouble in subsequent pregnancy and labour.

References.

(1) Engström.—Mittheilungen aus der gynäk. Klinik des Prof. Bd. i, p. 383, 1897.
(2) B. M. J., June 12th, 1897.
(3) Centralb. für Gyn., 1900, p. 29.
(4) Ectopic Pregnancy, p. 217.

FIBRO-CYSTIC TUMOUR OF THE UTERUS, LACERATION ON ITS SURFACE; FREE INTRA-PERITONEAL HÆMORRHAGE.

Shown by Dr. Lewers.

The patient from whom the specimen shown was removed was aged 51. She had been married twenty-four years, and had had five children, the last seventeen years before admission. She had had no miscarriages. Although she had had five children, she had only had three confinements, as she had twins on two occasions.

For four years she had had menorrhagia, the periods coming on every fortnight or ten days, and lasting seven or eight days. Sometimes she had had an almost con-

tinuous loss of blood. This state of things continued till Christmas, 1904. Since that time there had only been a slight "show" on one or two occasions. Previous to the last four years she was regular, and the period only lasted four days. She knew four years ago she had "a tumour," as her doctor told her of it. He was said to have expressed an opinion that it would "disperse." But, on the contrary, the tumour had grown considerably, especially during the twelve months before admission. She had during the same time become very weak.

She was admitted into the London Hospital on April 26th, 1905. She was much wasted. The skin had a yellowish tint, and she was profoundly anæmic; there was no jaundice.

A large tumour (the specimen shown) was found occupying the greater part of the abdomen. The larger, lower portion had the characters of a solid tumour; the upper, smaller portion, which reached under the ribs on the right side, was cystic.

Abdominal hysterectomy was performed on May 2nd. On opening the abdomen a considerable quantity of fresh blood was found in the peritoneal cavity. The wound was at once enlarged, and the large tumour brought outside. It was then found that the bleeding came from the line of junction between the lower, larger, solid part of the tumour, and the smaller upper cystic part; the latter was about the size of a child's head, one year old. A laceration of the surface for several inches had occurred at the line referred to, and was bleeding rather freely. An elastic ligature was temporarily put round the lower part of the tumour, and supra-vaginal hysterectomy was then performed in the usual way. The patient made a good recovery, and left the hospital about a month later.

The whole mass removed weighed 17 lb. 1 oz. How the laceration causing the bleeding occurred cannot, of course, be certainly known. It seems probable that the smaller upper cystic part of the tumour became fixed in some way against the spinal column, and that then

some sudden movement of the patient caused the lower, heavier, solid part of the tumour to swing one way or the other, and so caused the laceration observed. Anyhow the case illustrates a danger that is present in cases of this class—spontaneous laceration at some part of the surface of the tumour, with free hæmorrhage. In the present instance there can be no doubt that, had not the operation happened to follow shortly on the occurrence of the spontaneous laceration, the patient would have died.

Dr. Herbert Spencer has shown a specimen ('Obstet. Trans.,' vol. xlv, p. 378) in which the peritoneal investment of a cystic fibroid had been lacerated by manipulation during clinical examination. He had also seen a case of extensive intra-peritoneal hæmorrhage owing to the spontaneous bursting of a vein on the surface of a fibroid.

Mrs. Scharlieb said that a woman was operated on for "fibroids" at the Royal Free Hospital. On opening the peritoneum, much blood welled up before the parts were disturbed. The incision was lengthened, and the tumour delivered. The source of the hæmorrhage was found to be a ruptured sinus on the posterior surface of the growth.

CARCINOMA OF THE FALLOPIAN TUBES.

Shown by Dr. C. J. Cullingworth.

The specimen consisted of both Fallopian tubes and of the left ovary.

The portion of the right Fallopian tube measures three inches in length. Its diameter is five eighths of an inch at the cut uterine end and three quarters of an inch at the free extremity. A portion of thickened broad ligament is attached to the lower border of the tube. The outer surface of the tube is roughened by dense adhesions. Its lumen is occupied by a solid growth, which completely blocks it at the ampullary end, so that not even a bristle can be made to pass. The fimbriæ are not recognisable. The abdominal ostium is represented by an oval aperture

with a thick roughened margin; through the aperture the solid growth is plainly visible.

The left Fallopian tube is connected with a very complicated mass, measuring 4 inches in length and consisting of three solid lobes. The cut uterine end of the tube is an inch in length and is the only portion that retains its normal cylindrical shape. No abdominal ostium is seen, and, with the unassisted eye, no ovary could be traced. The lumen of the tube is occupied by a soft brain-like growth and can be traced from the uterine portion into one of the three solid masses. A section made at the elbow-like junction of the narrower part of the tube with the expanded, tumour-like part shows, again, a brain-like growth, enclosed within a thin capsule. The growth projects beyond the border of the capsule, and becomes everted over it. The lumen of the tube can be traced along this upper part of the growth. It then turns upon itself and is traceable through the upper part of the two distal lobes, opening on a cut surface on the outermost of the three. The diameter of the lobes varies, that of the middle one being 2 inches and that of the outer $2\frac{3}{4}$ inches.

A microscopical examination was made by Dr. Cuthbert Lockyer, who had kindly furnished a report, of which the following is the substance:

A section through the capsule of the proximal lobe of the growth shows that it is largely composed of muscle-tissue, containing thick-walled blood-vessels. There is no evidence of ovarian stroma to be found here, the conclusion being that the capsule represents the wall of the Fallopian tube.

A section taken through the outer pole of the outermost lobe shows a stratum of ovarian tissue lying externally and at some distance from the growth, as though the ovary had become adherent to and fused with the malignant tubal growth.

Both tubes are the seat of a neoplasm which has arisen from the mucosa, and which has the characters of a malignant papilloma. The growth is built up of irregular branching processes of epithelial cells, some of which

show a tendency to a columnar shape, though they are, for the most part, packed so closely together as to have lost their original contour, whilst some of the rapidly growing cells are spherical. The growth has burrowed into the tube-walls, and masses of malignant cells lie within alveolar spaces amongst the muscle-bundles. The sections from the right tube and those from the left show that the growth in each is of a similar nature.

The left ovary has not, in Dr. Lockyer's opinion, had any share in the formation of the large left-sided tumour, but has become indistinguishable as a distinct structure from being flattened out and incorporated in its capsule.

The patient from whom the specimen was removed was 41 years of age, had been married sixteen years, and had never been pregnant. During the first year after her marriage she had typhoid fever and was in bed three months. The catamenia had first appeared at the age of twelve and had always been profuse. About three years previous to operation, the loss having become excessive and there having been also some intermenstrual hæmorrhage, her doctor examined her, and finding the uterus low down and bulky, diagnosed uterine fibroid and suggested that a gynæcologist should be consulted. Menstruation, however, soon resumed its normal character and no further opinion was at that time taken. About two years ago she had an illness attended with much pain in the lower part of the abdomen. There was for some time doubt as to the nature of the illness, but eventually it was pronounced to be a second attack of typhoid. It lasted about eight weeks. Somewhere about this time the patient began to suffer from almost continual pelvic discomfort, never amounting to severe pain but aggravated by movement. With this symptom were associated an increasing frequency of micturition and a constant and increasing watery discharge, sometimes blood-stained and frequently offensive. She could not state with certainty whether this discharge came from the front passage or from the bladder; she was inclined to think the latter, on account of the

quantity and the bad smell. Latterly this discharge had been so troublesome that she found it impossible to protect the bed-linen successfully, and accordingly did not dare to leave home. She had never kept her bed for more than part of a day (though often feeling that she ought to do so) until advised about six weeks before the operation to try the effect upon the swelling and the symptoms generally of a month's complete rest in bed. All the symptoms had been much more marked since Christmas last. She was now again examined, and the doctor found much the same condition as before. He inserted a pessary which at first seemed to do good, but as the symptoms continued the patient saw a surgeon in Manchester, who diagnosed pyosalpinx and said that an immediate operation was imperative as the abscess might burst. Her own doctor, on hearing this, took her to see another consultant in Manchester—this time a gynæcologist—who, beyond what appeared to be a uterus enlarged by fibroids, was only able to make out some ill-defined inflammatory thickening in the situation of the right uterine appendages and did not think an operation necessary. Being puzzled what to do in the face of these conflicting opinions, the patient wished to come up to see a London specialist, and accordingly her doctor brought her up on April 12th, 1905. She had then, for the first time, missed one, if not two, menstrual periods. (A normal period came on a few days later. It was not more but less profuse than usual.)

Dr. Cullingworth found a fixed, localised, irregular mass, equal in size to a closed fist, in the right posterior quarter of the pelvis, pushing what appeared to be the considerably enlarged uterus over to the left. The left uterine appendages could not be felt, but, as the patient was stout and nervous, not much significance was attached to this. The diagnosis was difficult and uncertain, but the probabilities seemed to be in the direction of suppurative salpingitis with a small inflamed cyst of the right ovary and a uterus enlarged by a fibroid.

A month's rest in bed was recommended and, should

there then be no improvement, operation was advised. The month's rest was tried without apparent benefit, and on May 20th the patient came up to London for operation. She had some diarrhœa on the day she left home, and on the day following her arrival a very curious occurrence took place. When, as usual, a preparatory enema had been administered and had acted, there followed considerable hæmorrhage from the bowel, the blood being bright red and estimated as at least a pint in quantity. During the forty-eight hours the patient was in the home before operation the quantity of watery discharge on the pads was very considerable. There was a difference of opinion as to whether it came from the vagina or the bladder.

Under these circumstances, preparations were made for a preliminary dilatation and curetting of the uterus before performing abdominal section. But before any operative measures were proceeded with, an examination was made under anæsthesia, with the result that a fistulous opening, equal in size to a pea, was discovered in the anterior wall of the rectum, just beyond the so-called third sphincter, *i.e.* about four inches above the anus. Projecting through the opening were some granulations. This seemed to explain to a certain extent the hæmorrhage of the previous day. The idea of curetting the uterus (which on measurement was found of normal length) was consequently abandoned, and abdominal section was proceeded with at 10.30 a.m. on May 22nd. Dr. Tate assisted.

On opening the peritoneal cavity, an unlooked-for spectacle presented itself. Crowning the uterus, and adherent to it, was a thick, tense, more or less curved, sausage-shaped swelling, which was at the moment pronounced to be a hydrosalpinx, and which was presently found to be part of a large mass concealing the uterus and extending into the upper part of the left side of the pelvis. The mass was lobed in its deeper parts, and densely adherent to all the surrounding structures. One of the lobes, more or less spherical in shape, and measur-

ing $2\frac{1}{2}$ in. by $2\frac{1}{4}$ in. in diameter, had the appearance of an enlarged ovary. There was an irregular, adherent swelling, of smaller size, on the right side, situated deeply in the right posterior fossa. This was with difficulty separated and brought into view. Towards the end of the process of separation a quantity of soft papillomatous growth escaped from the patulous fimbriated end, which had evidently been closed by adhesion, and which had presumably been in direct connection with the interior of the rectum through the fistulous opening that had been felt.

When the two sides of the pelvis had been cleared, it was easy to feel the uterus tilted, with its left border directed forwards and upwards and its right border directed backwards and downwards. The uterus was of normal size and quite fixed. There were no fibroid outgrowths. What had been thought to be a fibroid was the enormously enlarged left tube capping the uterus and adherent to it. The right ovary was not made out. The appendix vermiformis was healthy and quite free. No extension of the pelvic disease to other parts of the abdomen could be felt. There was no ascites, but during the separation of the left Fallopian tube a quantity of blood-stained serum, with flakes of lymph floating in it, welled up, evidently from amongst the adhesions. There was a good deal of oozing from the right side of the pelvis. Both pedicles were examined and both made secure by additional ligatures. At the bottom of the funnel-shaped hollow from which the right tube had been dislodged was felt a small aperture, evidently the aperture of communication with the rectum.

The abdomen was well irrigated with hot saline solution, and the abdominal wound was closed, the opening into the rectum being relied upon for providing means of escape from the only part where there was a tendency to continued oozing. The operation lasted an hour and a half.

The patient had a small, rapid, uneven, flickering pulse from the beginning, and was unable from the first to

retain even sips of hot water. There was no abdominal distension throughout, and flatus was passed easily and voluntarily in abundance from the second day onwards. Only twice did the temperature run up much above 100°, viz. at 10 p.m. on the third day, and at 4 p.m. on the day she died, and on each occasion it quickly came down. Three powders of 3 grains of calomel were given one after another at two hours' interval on the second day, and again on the third, but with no fæcal result. On the third day a soft rubber tube was passed some distance up the bowel to avoid the perforation, and a pint of warm saline solution was slowly injected. It returned without even a stain of fæces, but with a quantity of fresh, bright blood. Flatus continued to escape in considerable quantities. The character of the pulse occasionally improved, but it was always rapid, and any improvement in its tone was of short duration. There was no pain. The patient died suddenly eighty-four hours after the operation, having become collapsed immediately after the passage of a small quantity of offensive material from the bowel. There was no autopsy.

In remarking on the case, Dr. Cullingworth said that the profuse and continuous watery discharge described by the patient ought, no doubt, to have excited his suspicion as to the true nature of the case, notwithstanding the patient's own belief that the bladder was the source of it. A remarkable feature was the absence throughout of anything like severe pain. The perforation of the rectum was only discovered on the operating-table, where a preliminary rectal examination was made in order to find an explanation of the hæmorrhage that had occurred the evening before. How long it had existed it is impossible to say. There was no previous history of hæmorrhage or other abnormal discharge. There had certainly been some diarrhœa, but only for the last two or three days.

The cause of death was obscure. There were none of the ordinary symptoms of septic absorption, such as abdominal distension, high temperature, etc. Neverthe-

less, looking back on the case, he regretted not having put in a gauze drain or a drainage-tube, as it was possible the opening in the rectum did not provide a sufficient outlet from the peritoneal cavity.

Mr. Alban Doran had listened with great interest to Dr. Cullingworth's valuable report. The recorded cases of primary cancer of the Fallopian tube now amounted to about seventy. He had collected notes on sixty-two in his "Table of over Fifty Complete Cases of Primary Cancer of the Fallopian Tube," published in the 'Journal of Obstetrics and Gynæcology of the British Empire,' for October, 1904. Since then other cases had been reported by Scharlieb, Macnaughton-Jones, Tomson of St. Petersburg, Orthmann, Pompe, van Merdervoort, and Keitler, whilst Jacobs had recently published an eighth genuine case of primary sarcoma of the tube. In Dr. Cullingworth's case there was free watery discharge, as in Miknoff's, Routier's, and Boursier and Venot's, where the tumour was a malignant papilloma; this condition was interesting, as the same symptom was observed in Doleris' well-known instance of innocent papilloma of the tube, where the patient was free from all signs of recurrence five years after the operation. In Mr. Doran's opinion, the cancer had developed, as was often the case, in an old hydrosalpinx, the seat of papillomatous salpingitis. Dr. Cullingworth objecting to this assertion that there was any "hydrosalpinx," Mr. Doran replied that at least the abdominal end of the tubes must have been obstructed, otherwise the free discharge would have escaped, not into the vagina, but into the peritoneal cavity as in Le Count's case. An obstructed tube containing much serous fluid should be classified under hydrosalpinx.

Dr. Cullingworth, in reply, said he was rather at a loss to know what grounds Mr. Doran had for supposing that there had originally been an hydrosalpinx. He understood a hydrosalpinx to denote a collection of serous fluid within a closed Fallopian tube. There was no evidence of there having been any such condition in the case he had narrated. The blood-stained serum discharged *per vaginam* he regarded as originating within the tube, and as being of exactly the same character as the discharge that occurs when the cervix uteri is the seat of a proliferaring malignant growth. It is of frequent occurrence in cases of tubal carcinoma which appear to be associated with an unusually patulous condition of the uterine end of the tube.

ECLAMPSIA; SEPTIC PERITONITIS; SPLENIC ABSCESS; DEATH ON SIXTEENTH DAY AFTER DELIVERY.

By J. C. Holdich Leicester, M.D., B.S., B.Sc.Lond., F.R.C.S.Eng., I.M.S.,

Resident Surgeon to the Eden Hospital for Women, Calcutta.

K—, a Bengali Hindu, aged about 30, married twenty years, one child about eleven years ago; was admitted at 1.10 p.m. on December 29th, 1904, with a history that she was pregnant, nearly full term, and had had three fits—two at her house, the first early in the morning, and the third in the conveyance on her way to hospital. Each fit had lasted about two minutes. There had been no prodromal symptoms such as headache, etc. She was said to have suffered from pneumonia three months before, for which she had been treated by a native doctor at her own house. There was nothing else of any bearing on the case in the history.

On admission patient was found to be semi-conscious; pulse was 100, temperature 98·4°, respiration 20. The uterus was the size of full term; no fœtal heart sounds could be heard; she was not in labour. There was slight œdema of feet; the thyroid gland was not enlarged. Three ounces of urine, containing a large amount of blood, were drawn off by a catheter; reaction acid; albumen boiled solid. Urea only about ·3 per cent.

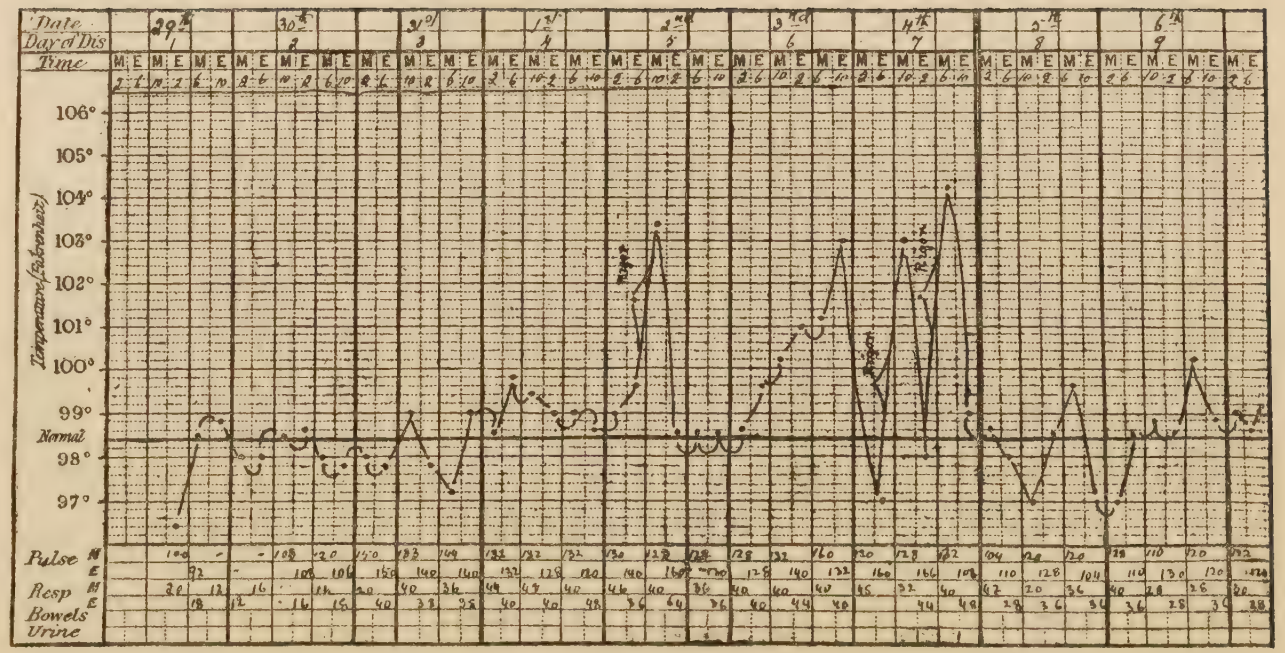
At 2.10 p.m. on the same day, about one hour after admission, she had a fourth fit, lasting about two minutes. At 2.40 p.m. morphiæ sulphas, grain ½, was adminis-

tered hypodermically, and thyroid extract (B. W. & Co.'s tabloids), grains 25, was given by the mouth. She had a fifth fit at 3.30 p.m. and a sixth at 9.10 p.m., each lasting about one minute. Immediately after this last fit a second dose of morphiæ sulphas, grain $\frac{1}{4}$, was given hypodermically. Another 5 grains of thyroid extract was administered at 8 p.m., and this was repeated at four-hourly intervals up till 8 a.m. on December 30th, 1904, and afterwards two-hourly to 2 a.m. on 31st. She remained in a semi-unconscious state between the fits (being, however, able to take her nourishment), but was quite unconscious during the attacks. She gradually recovered consciousness by about mid-day on December 30th, the day following admission.

Labour pains began at 1 a.m. on the early morning of December 31st; the os was fully dilated at 5.15 a.m. As she became rather collapsed at this time, with a very rapid and weak pulse, and a temperature of 101·4°, hypodermic injection of liquor strychninæ, ɱv, was ordered; she improved somewhat after this, but labour was not progressing very satisfactorily; so at 6.40 a.m. low forceps were applied and a dead male child weighing 6 lb. 13 oz. was easily delivered. After this she was again somewhat collapsed, so at 6.40 a.m. another hypodermic injection of liquor strychninæ, ɱvij, was given. There was a slight rupture of perineum, which was not repaired, as the patient's condition was too bad. The liquor amnii was exceedingly offensive. The placenta was expressed ten minutes later, and an intra-uterine douche of tr. iodine (ʒij to 1 pint) given. She rallied fairly well in the course of the day, but there was some dyspnœa, and the physical signs pointed to œdema of the lungs; so a stimulant cough mixture was ordered from 12 noon, to be given three-hourly, and this was continued up to the 14th. Thyroid gland tabloids, gr. v, were given at 10 a.m. and 2 p.m. Towards evening her condition again became low, so at 6 p.m. she was ordered a mixture of liq. strychninæ with sp. ammon. arom. and spt. ether, and this was repeated

at 8.30 p.m., midnight, and 4 a.m. on the early morning of the following day (January 1st). It was then omitted as her condition was much improved, and the thyroid gland, gr. v, which had been temporarily left off, was again given at noon and 6.30 p.m., and repeated three times on the 2nd, and after this twice a day up to the evening of the 14th. On the morning of this day (January 1st) it was noticed that the lochia were rather offensive, so vaginal douches of izal, 1 in 200, were ordered twice daily to January 5th, after which date carbolic acid douches, 1 in 40, were substituted and continued up to January 14th, every morning and evening.

On the 2nd, at 9 a.m., she had a rigor lasting one hour, with a rise of temperature to 103·4°. The discharge continued rather offensive. On the next day she again had a rise of temperature to 103°, but there was no rigor. On the morning of January 4th, on making a vaginal examination, the cervix was found to be in an unhealthy and sloughing state, and the tear in the perineum was also rather sloughy; iodised phenol was therefore applied. This was followed in half an hour by a rigor lasting thirty minutes, the temperature rising to 103·4° F. At 5 p.m., on the same day, she had a second rigor lasting one hour, temperature rising to 104·2°. The application of iodised phenol was repeated on the 6th, 8th, and 10th, and on the latter date it was noted that the parts were looking much healthier. On the 5th, 6th, and 7th there was no rise of temperature above 100°, but on the 8th it reached 102°, and on the 9th at 7 p.m. there was a rigor lasting half an hour, temperature rising to 103·8°. On the 11th she complained of severe pain in the left shoulder-joint, and all down the left side of the chest, extending to the hypochondriac region. Careful examination revealed no abnormal physical signs, and the spleen could not be felt. A belladonna plaster was ordered to be applied over the hypochondriac region. The pain continued during the 12th. On the 13th she had another rigor at 6 a.m. lasting three quarters of an hour, temperature rising to 105°. At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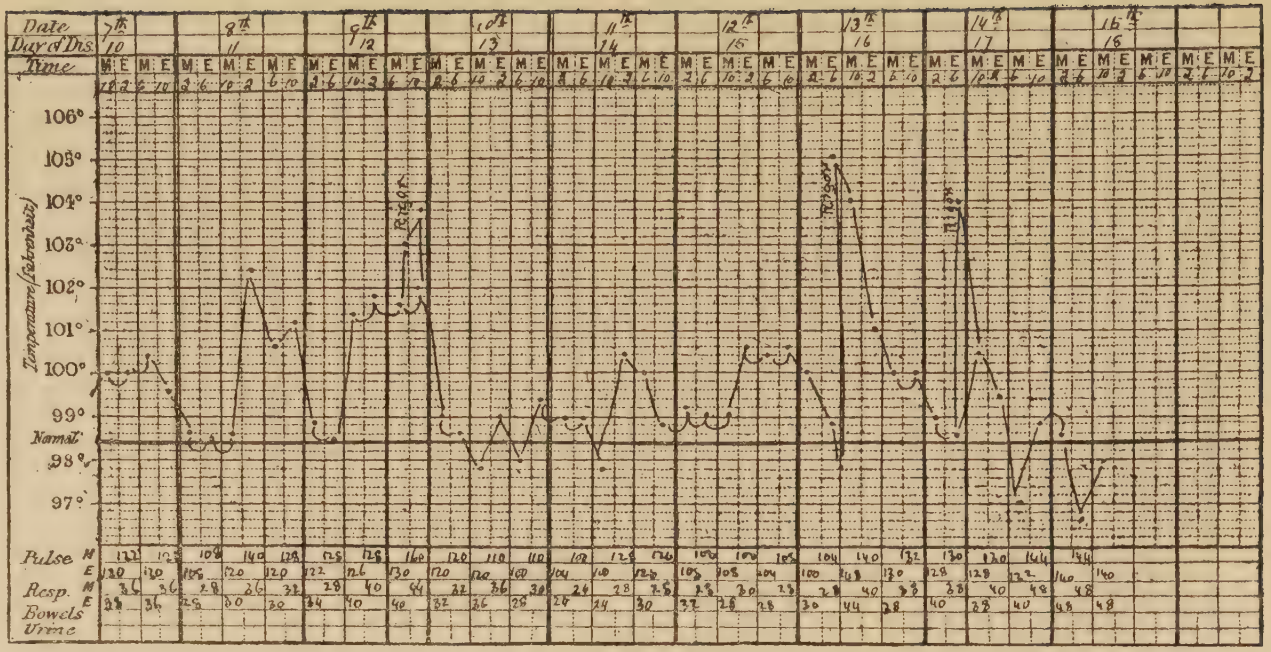
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this time she complained very much of pain in the epigastrium, and was again examined, but with a negative result. The pain was relieved by turpentine stupes. Her bowels had been opened four times this day, but as the pains seemed to be of a colic nature, Ol. ricini, ʒvj, was administered at 3 p.m., with, however, no effect on the pains. The bowels were not opened during the night, and as the abdomen was becoming rather distended, at 6.30 a.m. on the 14th an enema simplex, with turpentine, ʒj, was given by a long rectal tube, but with no result. The bowels did not act at all during the day, and there was increasing abdominal distension, with slight tenderness. Calomel, gr. v, was therefore given at 8 p.m., followed by salines every two hours. She vomited twice during the night for the first time, viz. at 1 and 2 a.m., and three times during the morning of the 15th, bringing up bile-stained fluid. There was still complete constipation, and the distension and tenderness were increasing, so chloroform was administered at 12 noon, and the abdomen opened in the mid-line by an incision about three inches long, commencing from about one inch below the umbilicus. A lot of stinking purulent fluid at once escaped; on examination the intestines were found covered with recent lymph. The uterus, tubes, and ovaries were all quite normal, except for some slight adhesions round the right ovary. The vermiform appendix and liver felt quite healthy, but there was a good deal of thickening and numerous adhesions detected in the region of the stomach; a second three-inch incision was therefore made in the mid-line, extending upwards, from about one inch above the umbilicus, for the purpose of thoroughly exploring this region. There was thickening of the omentum, with many adhesions to the stomach, and that organ was found very adherent to its surroundings, but no evidence of perforation or ulceration could be found. A gauze drain was inserted upwards between the liver and the stomach, and the wound closed with through-and-through S.W.G. sutures, except where the gauze was brought out.

Previous to doing this the peritoneal cavity had been thoroughly flushed out with normal saline. The lower wound was now closed, except where a rubber tube was brought out which drained Douglas' pouch, and a gauze wick leading upwards towards the stomach. The patient's condition at this time being very bad, she was infused with a pint of normal saline, containing one ounce of brandy in the right median basilic vein. During the operation the bowels were opened naturally, on the table. Immediately after the operation a hypodermic of atropine, eserine, and strychnine was given. She only survived 2¼ hours and died at 3.45 p.m.

Urine.—The amount of urine passed each day could not be accurately measured, as the patient frequently micturated in bed. Albumen, however, was present in considerable quantity right up to the last, varying from a half, on the day after delivery, to a thick cloud on the day of death.

Post Mortem, Eighteen Hours after Death.

External appearance.—Body well nourished, rigor mortis present. There are two incisions in the mid-line of the abdomen, each about three inches long, one extending up from one inch above the umbilicus and the other down from one inch below the umbilicus. The upper one is closed by suture, except where a gauze drain comes out, and the lower has a rubber drain-tube, and gauze drain at its upper angle.

Left pleural cavity healthy. Base of left lung adherent to the diaphragm.

Right pleural cavity.—Numerous bands of adhesions externally, and at the apex.

Pericardium contains clear fluid.

Heart weighs 10 oz.

Tricuspid valve admits tips of three fingers.

Mitral valve admits tips of two fingers.

Cavity of the heart muscle normal, root of aorta normal.

Left lung œdematous throughout, especially at the base; portion floats in water; no consolidation.

Right lung similar to the left.

Pharynx and œsophagus normal.

Larynx and trachea normal.

Abdominal cavity contains thin fluid with flakes of lymph. A strip of gauze found leading up among the intestines, and another over the pyloric end of stomach, between it and the liver, from the lower and upper wounds respectively.

Cardiac end of stomach adherent to diaphragm and spleen. Between the diaphragm and spleen an abscess cavity found involving the upper half of that organ.

Small intestines covered with recent lymph.

Liver large and pale, weighs 4 lb. 1½ oz.; on section, paler and softer than normal; shows signs of decomposition.

Gall-bladder, full of thick yellow bile; normal.

Left kidney.—Weight, 4 oz.; cortex somewhat diminished in extent, is pale; capsule strips off, leaving a rough surface, shows some cysts.

Right kidney.—Weight, 3¾ oz.; similar to the left.

Spleen slightly enlarged, about half as large again as normal; capsule thickened; its upper half contains an abscess cavity, with black sloughing walls. This abscess is separated from the spleen substance below by a thick fibrous wall. The lower half of the spleen contains several small infarcts. Microscopical examination shows numerous streptococci in the pus (these were afterwards obtained in pure culture).

Pancreas normal; weight, 4 oz.

Stomach slightly congested at the cardiac end, no ulceration.

Small intestines healthy, except for some congestion at the lower part of the ileum.

Large intestines healthy. Vermiform appendix, 2½ inches long; normal.

Bladder normal.

Uterus enlarged, 4 inches long; cavity contains some

recent blood-clots. Some roughening of the anterior wall at the site of the placenta; healthy.

Ovaries normal.

Cause of death.—Pyæmic abscess of the spleen; peritonitis after child-birth.

Remarks.—The case appeared to be worthy of record, as I believe a single abscess of the spleen, with no suppuration in other organs, is a rare affection.

The most complete paper having a bearing on the subject that I am able to lay my hands on at the present time is one on "Splenic Infections," by Stavely, in 'Annals of Surgery' for 1903. He refers to a considerable number of recorded cases, but none of them appear to have followed, or been connected with, puerperal conditions.

It seems almost certain that the original infection must have started from the uterus, and the extremely offensive state of the liquor amnii, taken with the fact that the lochia were also offensive from the first day, would point to some form of *ante-partum* infection, from which the genital organs appeared to have recovered, but not before the infection had been carried to the spleen in the form of a septic embolus.

In this case there were absolutely no local indications—such as swelling, fluctuation, or redness—to be detected, the only symptom being diffuse tenderness over the lower ribs and hypochondriac region on the left side, though from the *post-mortem* appearances the abscess must have existed for some time.

As to the influence of the eclamptic condition on the case, it must undoubtedly greatly have mitigated the chances of recovery. The state of the kidneys found at the *post mortem* would seem to indicate that there was a previous nephritis of a chronic nature, and this probably accounted for the fact that albumen was present in the urine up to the last. My best thanks are due to Lieut.-Colonel F. S. Peck, I.M.S., for his kind permission to publish the case; to Captain Leonard Rogers, I.M.S.,

Acting Professor of Pathology at the Medical College, for the full and complete notes at the *post-mortem* examination; and to Captain Owen Thurston, I.M.S., Resident Surgeon, Medical College Hospital, for the kind assistance he gave me at the operation.

JULY 5TH, 1905.

W. R. DAKIN, M.D., President, in the chair.

Present, 38 Fellows and 1 Visitor.

Books were presented by the Johns Hopkins Hospital Staff and Dr. Macnaughton-Jones.

Francis Lionel Provis, F.R.C.S.Edin., L.R.C.P.Lond., was admitted a Fellow.

The following gentlemen were elected Fellows of the Society: Francis William Nicol Haultain, M.D.Edin., F.R.C.P.Edin.; Robert Patton Ranken Lyle, M.D.Dubl.

ENDOTHELIOMA OF UTERUS.

BY MARY SCHARLIEB, M.D., M.S.

IN November, 1902, I operated on a case of abdominal tumour which was histologically so unusual that it seems worthy of special investigation.

Mrs. B—, aged 50, married twenty-eight years, mother of six children, youngest aged 10, six miscarriages.

She had noticed an abdominal tumour for eleven years; she was told it was a fibroid, and had been repeatedly advised to let it alone.

For some years the periods, always regular, had become very profuse, and latterly had been accompanied by a slight but constant intermenstrual hæmorrhage.

There had been some pressure on the bladder, and she

had needed the catheter, but this inconvenience ceased as the tumour grew and rose into the abdomen. At the same time she became subject to dyspnœa, cough, and palpitation.

The tumour grew rapidly, and when I saw her reached 2½ inches above the umbilicus. Its surface was smooth and the outline fairly regular; the whole mass was oval, the long diameter running from the position of the gall-bladder towards the left iliac fossa.

On vaginal examination the lower pole of the tumour was found filling the pelvic brim.

Operation, on November 28th, 1902.

The patient made a quick and uneventful recovery, and remains perfectly well up to now, June, 1905.

The parts removed consist of the tumour, uterus, and appendages. On removal the mass weighed 44 oz., and three pints of fluid escaped from the main cyst.

At the lower part of the mass is the uterus lying almost in the transverse diameter of the brim with its long axis horizontal.

The uterine cavity measured 3¼ inches in length. Bulging into it from above was the lower border of a mass the size of an orange, consisting of a congery of cysts.

Arising from the fundus, near the right uterine cornua, is a cyst the size of a six months' pregnancy. On incising this cyst there escaped three pints of a spontaneously coagulating, slightly yellow fluid, the last part of which contained fresh blood and blood-clot, owing to a corkscrew having been inserted into the tumour. The walls of this main cyst vary from $\frac{1}{8}$ to $\frac{1}{6}$ inch in thickness. In its wall were other cysts, varying from the size of a cherry to that of a hen's egg. They were filled with clear fluid; their walls were perfectly smooth and lined by a definite membrane, visible to the naked eye. There was nothing to be noted about the tubes. Each ovary contained a small cyst. All the vessels were hypertrophied, and the ovarian veins measured $\frac{3}{8}$ of an inch in diameter. The round ligaments were hypertrophied.

Microscopically.—The cysts were lined with a single layer of flat angular cells resembling endothelium. The rest of the cyst wall consisted of fibrous tissue, with a few muscle-fibres. In certain places, however, especially in a definite area in the largest cyst, small masses of new growth projected into the cavity.

The cells were angular in shape, and were arranged in columns imbedded in a stroma rich in spindle cells. The nuclei of the tumour-cells were well formed; they showed nucleoli, in some cases masses of chromatin, and frequently karyokinetic figures.

The nuclei of the stroma were cylindrical, stained feebly, and did not show mitosis.

Arrangement of the tumour cells.—They were arranged in three ways, but transitions were evident from one to another.

(*a*) Cells in strings, many of which were canalised, and some contained lymph. There were also new blood-vessels, the walls of which were better defined. This arrangement passed by imperceptible graduations into—

(*b*) Where the cells were individually surrounded by stroma, giving a picture which resembled sarcoma, but the cells preserved their characteristic shape.

(*c*) The third manner of arrangement resembled alveolar sarcoma, the masses of cells lying in alveoli in the stroma, but with a delicate reticulum between the individual cells.

From these characters it was thought that the tumour was probably a lymphangioma, with small nodules of endotheliomatous new growth in the walls. The rarity of these tumours, or their lack of recognition, seemed to make it desirable that the growth should be carefully investigated.

The literature of the subject of endothelioma is scanty.

Roberts, in his 'Outlines of Gynæcological Pathology,' p. 176, refers to it as follows:

"The question of cystic fibroids is important. Leopold and Fehling have described cavities in such tumours lined

with a definite endothelium, and they think that the spaces are lymphatic in origin. The author has examined many cystic fibroids of the body of the uterus for endothelium, but has never been able to demonstrate its occurrence. Cullingworth also points out that these spaces are not true cysts."

The reference to Cullingworth is given as 'Obstet. Soc. Trans.,' vol. xxxviii, p. 8; but the only expression of opinion by Dr. Cullingworth on that occasion is found on page 12, where, in reply to a question by Dr. William Duncan as to whether the cysts in a certain fibro-cystic myoma were lined with endothelium, Dr. Cullingworth said that he could not supply an account of the microscopic appearances of the cysts, but that it was his impression, and Dr. Shattock's, that the fluid-containing cavities in the tumour were not true cysts.

Dudley, of Chicago, in his 'Diseases of Women,' p. 422, says:

"Endothelioma is a malignant new formation arising from the endothelium of blood-vessels or of lymph-vessels, or of serous surfaces; it closely resembles carcinoma in gross appearance and clinical manifestations. The entire lumen of the vessels is distended with proliferating endothelium, which assumes a variety of shapes. The cells usually form nests and strands similar to those of carcinoma. The diagnostic point is the origin . . . The growth is found in the cervix and corpus uteri, and very rarely also in the ovary, Fallopian tube, and vagina."

This paragraph is, however, not supported by references to reported cases, but seems to be founded on an article in Gebhard's 'Pathologische Anatomie der Weiblichen Sexualorgane.' Here at page 186 we find:

"By endothelioma we understand malignant growths the elements of which are derived from the endothelial cells of blood-vessels and lymphatics or of the serous membranes. . . . Microscopically they resemble carcinomata histologically, for in the endotheliomata also the tumour-cells are arranged in strings and nests, but they

are diagnosed from each other by the character of the tissue in which they develop. In this case also, as in the carcinomata, we can speak of a type, and separate the tumour substance from the stroma. The first consists (that is, the tumour substance consists) of the enlarged intima cells of the blood- or lymph-vessels. The lumen of the vessels is enlarged and filled with endothelial cells much altered in shape.

"The strings or columns of cells are irregular, much ramified, and twisted. They sometimes communicate with vessels that have not yet suffered malignant degeneration.

"The shape of the cells often differs from that of normal endothelium, and it cannot be denied that they approximate to the type of epithelial and carcinomatous cells.

"They lose their flat shape, acquire protoplasm, the body of the cell becomes opaque, and the nucleus often shows chromatin. . . . This new growth appears liable to develop at any age, and has been seen both in young patients (a virgin of 18 reported by Braetz) and in women at the menopause."

Gebhard then describes a case reported by Amann, an endothelioma of the portio vaginalis.

Veit, who considers that some cases of interstitial nodule of the cervix uteri which appear to be carcinoma are endotheliomata.

Pick, who described a case of endothelioma of the corpus uteri in a woman, aged 52, the menopause having occurred four years previously. The tumour was situated in the corpus uteri and intruded on the cavity. It resembled a submucous fibromyoma; but in the mucous membrane covering the lower half of the tumour were found tubes of cells with a definite lumen which, from their nature and position, were recognised as lymphatics with overgrown endothelium. Similar cases are also recorded by von Grape and McFarland. To these cases Gebhard adds one of his own. At the end of this most interesting article Gebhard writes as follows:

"It remains to emphasise the difference between pure

endothelioma and carcinoma spreading by way of the lymphatic vessels. In both cases the lymphatics are filled with malignant new growth. In the first case we are confronted by a primary degeneration of the lymph-endothelium, in the other by a secondary change.

"In the first the strings of cells consist of the offspring of the endothelium; in the other they are the elements of a carcinoma, the cells being epithelial in nature.

"Although one cannot always say which [*cell*] is epithelial and which is endothelial in origin, yet there is a noticeable difference in the appearance of the cell columns. In lymphatic carcinoma they are generally seen ramifying in the stroma like the veining of marble, while in endothelioma they are very irregular thick masses of cells, much contorted, and resembling the borings of earthworms.

"In lymphatic carcinoma there are abrupt angular breaks in the strings, while in endothelioma rounded contours predominate.

"In lymphatic carcinoma fine true capillaries are bound together in a network and, lastly, true alveolated masses are found which have broken through into the interstices of the surrounding tissues."

On the motion of Dr. CULLINGWORTH the specimen was referred to the Pathology Committee.

TWO CASES OF MALIGNANT EMBRYOMA OF THE OVARY.

(With Plates VIII and IX.)

Shown by Mr. H. T. Hicks
and
Mr. J. H. Targett.

As this form of ovarian tumour is very rare, and as no similar case has been brought before this Society, we have ventured to place on record a short account of a characteristic example of the disease, and to include references to the recent literature of the subject. Such growths are usually included in the group of teratomata, but, on account of their close relationship to the dermoid tumours of the ovary, we prefer the title of "malignant embryoma."

Case 1.—Emily E—, aged 14, was admitted into Guy's Hospital on December 21st, 1903. She was taken suddenly ill on the day before admission with severe abdominal pain and sickness. Previous to this attack she had been in her usual condition of health, but had always been thin and delicate (her parents were dead, the cause of death not being known). She was at work at a paper bag factory up to the time of the attack. The bowels were open on the day before admission, and there was a history of vaginal discharge for about a month. She had reached puberty, and had menstruated once. The period lasted three days, and was normal.

On admission she was in great pain, her pulse 128, her temperature 102°, her tongue dry and furred. On examination the abdomen was slightly distended, rigid at its lower part, with a little tenderness on palpation. The flanks and upper part of the abdomen were resonant, but there was dulness from the umbilicus to the pubes, where an indefinite thrill could be obtained. *Per vaginam*, a cystic

swelling could be felt high up and to the left of the uterus. It was, however, difficult to carry out a satisfactory bimanual examination on account of the rigidity of the abdominal wall. The signs and symptoms suggested peritonitis—a diagnosis which was made all the more probable by the presence of the vaginal discharge. After resting in bed for a few hours, her pulse became slower, and the temperature came down to 99·4°. The diagnosis was then altered to one of ovarian tumour, with torsion of the pedicle and peritonitis.

Mr. Targett opened the abdomen in the middle line, and immediately came upon a black ovarian tumour with many recent adhesions to the anterior abdominal wall, and more firm attachments to the omentum above. The tumour was tapped, but only a little, dark, blood-stained material came away. An incision was then made into the mass, and a large handful of semi-solid necrotic material was evacuated. The capsule was so rotten that it broke into small pieces during removal, but the whole mass was at length got away, and proved to be a left-sided ovarian tumour, the pedicle of which had 2½ twists. The abdominal cavity was washed out with normal saline solution, and the abdominal wall sewn up with salmon-gut sutures. The patient did very well after the operation, the pain ceased, and the temperature came down to normal.

She went out on January 24th, 1904, to a convalescent home; the abdominal wound was quite healed, and the patient had increased considerably in weight. Menstruation became regular, and the patient remained well for three months. She then began to complain of abdominal pain, which was soon followed by swelling. She was re-admitted on May 14th, 1904, suffering from well-marked ascites and rapid wasting. A large mass could be felt in the left iliac fossa. The abdomen was again opened by a small incision, and a large quantity of serous fluid evacuated. Sessile and pedunculated growths were found studded over the intestines and omentum. The large

mass of growth in the left iliac fossa was found to be firmly fixed, and to extend deeply into the pelvic cavity. Further operation being impossible, the abdomen was again washed out and sewn up. Within fourteen days the ascites recurred and the abdomen had to be tapped. Subsequently paracentesis was performed five times, but the patient went steadily downhill. She wasted quickly, her temperature became irregular and pyrexial, the urine alkaline and purulent, and she died, in a condition of uræmic coma, seven months after the first operation.

At the first laparotomy there was no ascites, nor were there any secondary growths seen on the peritoneum. The primary tumour was almost black in colour, and was about the size of a man's head. There was a distinct pedicle, which was tightly twisted. The whole mass looked like a cystic adenoma of the ovary, which had become necrotic and discoloured as the result of torsion of its pedicle, but, as was noted at the time of the operation, there was a considerable amount of solid material present in the tumour. It is impossible to give a more detailed account, for the tumour was so rotten that it had to be removed in pieces.

The appearance of the peritoneum at the second operation was practically the same as that found at the *post-mortem* examination.

Autopsy, July 1st, 1904. The following appearances were noted :

Great wasting of the body. Laparotomy wound healed. Lungs—septic bronchopneumonia and pleuritic adhesions at both bases. No growth found. Heart normal. The pericardium held a small quantity of serum.

The peritoneal cavity contained 62 oz. of blood-stained fluid. The parietal layer was thickened and white, with numerous growths on its surface. The stomach was normal, and free from growth on its peritoneal surface. The lumen of both small and large intestines was not encroached upon, nor the mucous membrane infiltrated by growth ; but upon the peritoneal aspect of these parts

there were numerous masses, varying in size from a pin's head to an orange. These growths formed in many places pedunculated masses, similar secondary growths being seen on the capsule of the liver and spleen. The striking point about these deposits was the superficial manner of their growth.

The main mass of the recurrent growth was found in the pelvis, being situated more on the left side. The uterus was buried in it, and the right ovary was the seat of a nodular growth, about the size of a tangerine orange.

The recurrent tumour measured 11 inches in the vertical, extending upwards almost to the lower pole of the left kidney. The transverse diameter was about seven inches, and the antero-posterior six inches. The kidneys were in a condition of suppurative nephritis; the mucous membrane of the ureters and the bladder was inflamed, but the ureters were not dilated.

The growth was white in colour, and its surface coarsely nodular. On section the cut surface presented a white appearance, with small hæmorrhages here and there into its substance. Each lobulated mass consisted of a central core of white fibrous tissue, and from this centre septa ran towards the periphery, and contained between these septa was growth of softer consistency. Although for the most part the tumour appeared solid, there were in many places cystic spaces, varying greatly in size. No cartilage, bone, or hair could be seen with the naked eye. Many of the retro-peritoneal lymph-glands were apparently infected, but on account of the extreme alteration of the anatomical disposition of the peritoneum by the growth, it was difficult to be precise in distinguishing between retro-peritoneal and intra-peritoneal deposits.

Microscopical Examination.

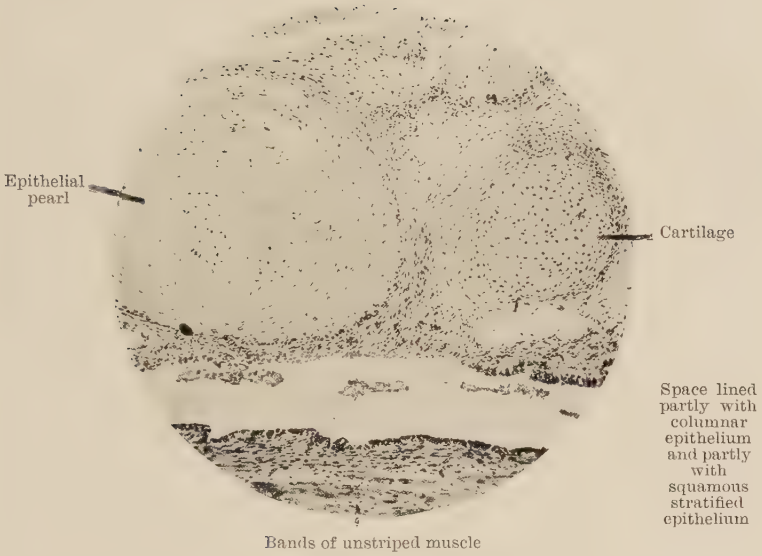
The sections taken both from the primary and secondary growths may be roughly described as composed of:

(1) Tubules and cysts of various kinds.

Cysts and tubules lined with columnar epithelium like that of the large intestine.

Illustrating Messrs. Hicks and Targett's two cases of Malignant Embryoma of the Ovary.

Adlard & Son, Imp.


Epithelial pearl
Cartilage
Space lined partly with columnar epithelium and partly with squamous stratified epithelium
Bands of unstriped muscle

Illustrating Messrs. Hicks and Targett's two cases of Malignant Embryoma of the Ovary.

Adlard & Son, Imp.

(2) Nodules of cartilage and bone.

(3) Epithelial pearls; and

(4) A groundwork of fibrous, muscular, and fatty tissues.

A short description of each of these elements will be given.

(1) *Tubules and cysts.*—These are very numerous, and their shapes and sizes vary greatly. Some are lined with tall columnar epithelium, like that of the large intestine, and the resemblance to bowel is increased by the presence of bands of unstriped muscle arranged irregularly around them. Certain tubules of this class are distended with mucoid secretion and form small cysts. A second variety may be termed acini, and these are in clusters like mucous glands; here and there they are in close apposition with nodules of cartilage, recalling the structure of bronchial tubes. A third type may be described as cystic spaces lined partly with columnar and partly with squamous stratified epithelium, the change from the one to the other kind of epithelium being curiously abrupt. Lastly, a few tubules were probably lined with columnar ciliated epithelium, as the arrangement of the cells resembles that in the respiratory mucosa.

(2) The nodules of *cartilage* are small, and are oval or spherical on section. They are all composed of hyaline cartilage, and most of them possess a thin capsule of condensed fibrous tissue. A few fragments of bone may be seen, and they do not appear to be calcified cartilage, but irregular plates of ossification in the fibrous stroma.

(3) The *epithelial pearls* are striking objects in the sections. They exhibit a single layer of cubical epithelium at the periphery, and this is succeeded by a dozen or more layers of somewhat flattened or fusiform cells concentrically arranged. The central cells retain their nuclei, but are evidently becoming degenerated and swollen. A similar arrangement of cells is seen in the spaces lined with stratified epithelium, and it may be that some of the pearls represent transverse sections of such spaces.

(4) The *groundwork* of the tumour has a complex

structure. In it may be recognised simple adipose tissue, broad bands of unstriped muscle-fibres, gelatinous areas like fœtal connective tissue, much denser fibrous material, fields of a delicate granular substance like neuroglia, and finally a sarcomatous growth composed of round and small fusiform cells. Groups of ganglion cells like those of the sympathetic system in the intestinal wall may also be seen between the bundles of muscle. In spite of the abundance of these constituents there is no anatomical arrangement of the parts to form a definite organ; the derivatives of the primary germinal layers seem merely to have run to waste.

Case 2 (under the care of Mr. Reynall Bellamy, in Stockport Infirmary, to whom we are greatly indebted for the clinical notes).—A child (female), aged 6, admitted with swelling of the abdomen, which had been noticed for three weeks. After tapping the abdomen a tumour was found extending from the pelvis into the abdominal cavity. This was removed by abdominal section without great difficulty, but within three weeks the ascites had recurred, and after several abdominal tappings the patient died, about two months from the first operation.

No *post-mortem* examination was allowed.

The primary tumour was about the size of a cricket-ball; it was rounded, but slightly irregular in shape, and the outer aspect of the capsule was for the most part smooth and free from adhesions.

The fimbriated end of the Fallopian tube was attached to the lower pole of the tumour, and, together with a small portion of the broad ligament, formed a definite pedicle.

On section the mass was found to be of an almost uniform chocolate colour, due to hæmorrhage into it at every part. Its substance was of a soft friable nature, with many cystic spaces, varying in size from that of a pin's head to a walnut. The mass was in such a degenerated condition that it easily broke down under the finger, and it was only by taking numerous pieces for

section that a definite histological structure could be made out. The slides prepared showed cartilage and similar cystic spaces to those observed in the present specimen. This tumour was chiefly composed of round and small spindle-shaped sarcomatous cells. A capsule formed of condensed ovarian tissue could be recognised in some of the sections. Unfortunately, no secondary growths were available for examination. The details thus lack completeness, but are interesting as relating to the youngest known case on record.

Remarks.—The number of recorded cases of malignant embryomata is small. Sänger, writing in Martin's 'Gynæcology,' says there are 14 published cases, and Pfannenstiehl puts the number at 10. With 11 collected from the literature added to our own 2 we have 13 cases. The microscopical appearances described by Pfannenstiehl, Emmanuel, Sänger, Lazarus, Ewald, and others correspond closely with our own sections, though in some instances a larger amount of nervous tissue was found. In Backhaus's case large patches of embryonic brain substance, neuroglia, and ganglion cells are described. Saxer also found nervous tissue. On the other hand, Emmanuel and Kramer failed to find any evidence of nervous structures. Hair-follicles, sweat-glands, and pigment have also been met with in some specimens. Krömer describes an embryonic retina in close relation to patches of pigment. No doubt the individual germinal elements vary in the extent of their development in different specimens. Gsell states that ectodermic structures were absent in his case. Wilms has found that the three primary germinal layers are often represented in the solid processes (Zotte) of many dermoid cysts of the ovary, but states that the ectodermic elements are by far the most developed. Beneath the ectodermic structures may be seen plain muscular fibres, cartilage, and other mesodermic derivatives, and lying below these may also be seen tubular spaces, lined with columnar epithelium, which are taken to be endodermic in origin. Thus there seems to be a close relationship between the

ordinary innocent dermoid cyst of the ovary and the very mixed tumour which we think is best called malignant embryoma.

Metastases.—There is a tendency for metastatic growths to confine themselves to the peritoneum and retro-peritoneal lymph-glands, visceral metastases being rare, and only mentioned in less than one third of the cases. The pleura was found infected in Kramer's case, as well as the peritoneum. In Falk's case there were metastatic growths in the lungs, and in the case described by Backhaus the patient died with symptoms of cerebral tumour, and large secondary growths were present on each side of the neck. In this case, however, there was no *post-mortem* examination, but the primary growth was a typical mixed embryoma. Sänger draws attention to the frequency of peritoneal infection, and he looks upon the secondary growths as implantation grafts. Ewald comes to the same conclusions. The tendency, therefore, is for the secondary growths to confine themselves to the peritoneum, but general dissemination occurs in a few cases.

As regards the microscopic appearance of the secondary growths, there seem to be two distinct varieties. In our first case and in those given by Emmanuel, Lazarus, Ewald, and Falk the secondary growths were of the same complicated nature as the primary growth, but in the cases of Keller, Saxer, and Kramer the metastases were of the type of the small, round-celled sarcoma ; in these latter cases the mesoblastic elements only seem to have become disseminated.

The recurrent growth in the pelvis may reach an enormous size, in our first case measuring 11 by 7 by 8 inches.

It is difficult to discuss the question of malignancy, because a hard and fast line cannot be drawn between the complex dermoids and malignant embryomata. Perhaps it is legitimate to look upon these growths as bearing the same relation to one another as the benign and malignant adenomata—that is, to speak of benign and malignant dermoid tumours of the ovary.

The large size of the solid primary tumour, and the extreme confusion of the elements of the germinal layers would constitute the distinguishing features.

However, Kroemer records a growth, possessing the size and microscopical appearance of a malignant embryoma, where the patient was well and free from recurrence a year after operation.

If we are provisionally to regard this case as innocent, we must reserve our ultimate opinion as to the invariably malignant character of these mixed embryomata. But 11 undoubted malignant cases are on record; 9 of these died within the year, Ewald's case lived $1\frac{2}{3}$ years, and Falk's $2\frac{1}{2}$ years. Lazarus's patient died a few days after operation.

The patients, three of whom were multipara, were all under 30 years, the respective ages at death being 6, 13, 14, 15, 17, 20, 20, 21, 22, 27, and 30 years.

From the consideration of these cases the following conclusions may be drawn:

(1) Malignant embryomata of the ovary are rare. They usually occur in young adults, but may be met with in childhood.

(2) The tumours may attain a large size; they are usually pedunculated, and devoid of adhesions unless the pedicle has become twisted.

(3) Secondary growths are frequently restricted to infection of the peritoneum. They may present the same composite structure as the primary growth, or be wholly composed of sarcomatous elements.

(4) Pain and ascites are constant symptoms; ascites may develop early, even before actual infection of the peritoneum. In several instances a diagnosis of twisted ovarian cyst has been made.

(5) Ovarian tumours exhibiting an irregular disposition of embryonic elements are very liable to be malignant.

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Report of the Pathology Committee on Dr. Hamilton Bell's Microscopic Sections showing the Appearance of Thyroid-like Structures in Ovarian Cysts. Shown on June 7th, 1905.

"We have examined these microscopic sections and agree with Dr. Hamilton Bell's report thereon. We consider that the tissue in question so closely resembles the structure of adult thyroid gland, that we are unable to distinguish between them. The sections show no other structures, suggesting a teratoma.

"Sections from three other multilocular ovarian tumours were shown by Mr. Targett, and corresponded exactly in microscopical structure with those exhibited by Dr. Hamilton Bell. These sections also showed no evidence of a teratomatous structure.

"Sections from an undoubted ovarian teratoma were shown by Dr. Herbert Williamson. These exhibited a tissue which in its histological characters exactly resembled the thyroid-like structure of the preceding specimens.

"The evidence before us is not sufficient to justify us in expressing an opinion as to the origin of this thyroid-like tissue.

"(*Signed*) R. Hamilton Bell.
G. Bellingham Smith.
J. H. Targett.
Herbert Williamson.
Corrie Keep.
Walter S. A. Griffith, *Chairman.*"

EXTRA-UTERINE GESTATION SAC RUPTURED IN THE FIFTH MONTH OF PREGNANCY.

Dr. Boxall showed this specimen. The patient was about 30 years of age; she had been married seven years,

but had had no child or miscarriage. The courses stopped 5½ months back, but for four weeks slight irregular hæmorrhages had taken place. She went to an hospital, and was advised to go in under the impression that she was suffering from a polypus. She laid up, however, for two or three weeks at home, slight hæmorrhages continuing. Fainting occurred, and she became collapsed. A local doctor was called in, and the case was seen next day in consultation with him. The abdomen was then found to be distended much more than on the previous day: it was very tense and tender. The cervix could not be reached, but a large mass was pressing down to within two inches of the vulva. The temperature was 97·2° and pulse 150.

As the patient's condition would then not admit of her removal to hospital, arrangements were at once proceeded with for operation, which had to be conducted in very cramped quarters. On opening the abdomen free blood escaped, and the clots were removed. The uterus was enlarged, and had been raised entirely out of the pelvis, closing in the sac above. The omentum and small intestines were adherent to it; these were tied off and separated. It was then found that the sac had apparently ruptured in two places, one well away to the right and the other in the right posterior quarter of the pelvis—a distance of about two inches separating them. Bleeding was still going on. Liquor amnii escaped through the rupture on the right, and the head of the fœtus protruded. The opening was enlarged and the fœtus was extracted. The fœtus showed signs of having been impacted in the pelvis, and had undergone some maceration. The placenta had become partly separated from its attachment to the back of the uterus, and to the front and right side of the pelvis, but was still attached deep down in the pelvis. As difficulty was experienced in controlling the hæmorrhage, it was decided to remove the uterus with the placenta. The bleeding points were secured, but some difficulty was experienced in effectually controlling the bleeding at the floor of the pelvis. Probably about 4 oz. of blood were

lost during the operation. Saline and rectal injections were freely used. Unfortunately, just as the operation was completed the patient sank.

At a recent meeting of this Society attention was directed to the rare occurrence of rupture of an extra-uterine sac after the middle of pregnancy. Additional interest is lent to this case by the rupture having taken place apparently about the same time in two separate places, and that the fœtus had developed and become impacted in the pelvis.

Dr. Herman said that rupture of the sac of an ectopic pregnancy was not common in the second half of pregnancy. After the mid-term of pregnancy it became rarer and rarer as the months went on. There was a broad contrast in this matter between the first and second half of ectopic pregnancy; in the first half rupture was frequent and the risk of operation small; in the second half rupture was rare, and the risk of operation great. He observed that the hæmorrhage in this case took place during the removal of the fœtal sac and placenta. He asked, why not have been content with removing the fœtus, leaving the placenta and draining the cavity?

Dr. Boxall, in reply, said that as the placenta was already in great part detached, it was decided to remove it entirely, and to deal with the bleeding surface as offering the best chance to the patient.

LARGE FIBROTIC UTERUS, WITH CALCIFICATION OF THE ARTERIES.

Shown by Dr. J. S. Fairbairn.

The condition of fibrosis or sclerosis of the uterus has recently attracted some attention, and this specimen is brought before the Society as a well-marked example of this change. It consists of the uterus and appendages removed by abdominal total hysterectomy from a woman aged 50.

The history of the case is shortly as follows: The

patient had had eight children, the last born eighteen years ago, and one miscarriage at the third month seven years ago. The labours and puerperia were normal. Increase in the amount of the monthly loss had been noticed for about three or four years; formerly the loss continued for six days, but recently it had extended over three weeks, so that the patient was only free from loss for about a fortnight. The quantity of blood was also much greater, and at the last period two or three "floodings" are said to have occurred. A tumour was first noticed in the abdomen five years ago, and had increased in size since then; there had been occasional pain in the left side, worse at the periods, but not enough to make the patient lie up. The reason for her seeking advice was the menorrhagia and consequent anæmia and loss of strength.

On examination she was seen to be very anæmic, with a sallow colour; hæmic murmurs were heard at the base and apex of the heart. In the abdomen was a large hard mass reaching to above the umbilicus; it was rounded and regular, and tender to palpation. *Per vaginam* the cervix projected normally, and appeared to be somewhat elongated; no part of the abdominal tumour could be felt in the pelvis, but tumour and uterus all moved together. The case was looked on as one of fibromyoma of the uterus, and the patient was admitted into St. Thomas's Hospital for operation. Hysterectomy was done on April 28th, and the patient afterwards made an uninterrupted recovery.

On examining the specimen it will be noticed that the uterus is evenly and uniformly enlarged; the weight of uterus and appendages was 2 lb. 11 oz. On section the uterine walls were found to be very hard and thick and measured 2½ inches from mucous surface to peritoneum. There are one or two small interstitial fibroids in the posterior wall, but they form quite an insignificant addition to the mass, which is almost entirely made up of the general thickening of the uterine wall. In the wall may

be seen many little nodular masses like myomata; they are not however as well encapsuled and differentiated from the rest of the uterine tissue as is usual with these tumours. The whole uterine wall appears to be involved in this change except at the fundus, where there is a thin layer of normal uterine muscle, which however is not clearly cut off from the fibrotic portion. The naked-eye appearance of the uterus suggests a general fibrosis, as there is no differentiated tumour; the possibility of adenomyoma was at once suggested by this undifferentiated appearance of the growth in the walls. The report from the Clinical Laboratory, signed by Dr. Dudgeon, stated that there was no evidence of adenomyoma, but that there was distinct increase of fibrous tissue and calcification of some of the uterine arteries. That this latter was well marked was discovered during the cutting of the block, which was quite gritty. Two sections are shown, one stained by van Gieson's method, which shows the structure of the uterine wall to be made up of muscular and fibrous tissue, and the other showing some of its vessels, with well-marked calcification of their walls. The preponderance of fibrous tissue among the muscle bundles would appear to confirm the naked-eye appearance of fibrosis of the uterine wall as the principal change. This condition has been frequently described, and for several years past there has been a heading of "Fibrotic Uterus" in the Reports of St. Thomas's Hospital; these have generally been small uteri removed by vaginal hysterectomy from elderly patients suffering from persistent uterine hæmorrhage which had resisted all treatment. They have been characterised by thick and hard walls, and sometimes by thickened arteries, but hitherto no specimen as large as this one nor with as well-marked arterial degeneration has been examined. Mr. Bland-Sutton has referred to this condition in a paper in the 'British Medical Journal,' and Dr. Haultain has described a somewhat similar case under the title of "Diffuse Nodular Fibrosis" in his paper on "One Hundred and Twenty

Abdominal Hysterectomies for Fibromyoma," in the 'Journal of Obstetrics and Gynæcology of the British Empire' for April, 1905. Dr. Freeland Barbour has also referred to a similar class of case in a paper on "Climacteric Hæmorrhage due to Sclerosis of the Uterine Vessels" which appeared in the June number of the 'Journal of Obstetrics and Gynæcology of the British Empire.'

The precise pathological change and its etiology are not well recognised, and this specimen is brought forward in the hope that further light may be thrown on it by the Fellows of the Society.

Dr. Macnaughton-Jones remarked that in these cases of calcification it was noticed that there was previous hyaline degeneration and that the calcareous deposit was laid down within the area of the hyaline change. He had published a case in which this change was shown in the centre of a myoma.

Dr. Amand Routh asked if there was any explanation of the menorrhagia which was a constant symptom of these cases of uterine fibrosis. With the atrophic mucosa and the sclerosed arteries one would expect a diminished rather than an excessive menstrual loss.

Dr. Handfield-Jones was much interested in the specimen which had been exhibited. He had removed smaller fibrosed uteri, mistaking them, as Dr. Fairbairn had done, for cases in which myo-fibromata were present. As regards the menorrhagia which was constantly present in these cases, and the origin of which was still *sub judice*, he pointed out that microscopical sections showed very marked fibroid thickening of the walls of the smaller vessels. This condition would make it difficult for the minute vessels to collapse, and after their continuity had been destroyed by the changes which occurred at the menstrual epoch, hæmorrhage would still continue, owing to the patent state of these vessels.

MONSTER OF SEVENTH MONTH REMOVED BY HYSTERECTOMY.

(With Plate X.)

Shown by Dr. Macnaughton-Jones.

The patient from whom the fœtus was removed was 43 years of age. She conceived one month after marriage,

Illustrating Dr. Macnaughton-Jones's case of Monster.

Adlard & Son, Imp.

and the operation was performed during the seventh month of pregnancy. The facts of the case are, briefly, these :

From the time that she knew she was pregnant her mind became disturbed, inasmuch as her father and uncle were both insane ; one cousin was also insane and two other cousins mentally affected ; she herself had married her first cousin. Before I saw her, during the fourth month of pregnancy, she had consulted two obstetricians as to her condition, who considered that the uterus was myomatous, but did not interfere. Her mental state becoming more serious, and suicidal tendencies developing, with insomnia and some hallucinations, I was consulted as to the advisability of terminating the pregnancy. On examining the uterus I could not then find the fœtal pulsations or projections, and the uterus appeared generally hard and somewhat irregular in outline, especially the cervix, which had a myomatous feel, but I could not definitely distinguish any myoma. A few weeks later, as her relatives were getting more anxious about her, I saw her in consultation with Dr. Alban Doran. The condition was much as I had found on the previous examination, but now the fœtal pulsations were heard for the first time, and a weak placental souffle. Considering all the facts of the case, it was thought advisable to terminate the pregnancy during the seventh month, and if there were serious difficulty in carrying this out, to perform Cæsarean section or hysterectomy.

On the two hundred and seventeenth day a sterilised tent was introduced, and dilatation of the cervix commenced. The latter was very hard, and it was with difficulty that a fair-sized tent was passed. The gradual dilatation was continued on the following day, and on the morning of the next dilatation was sufficiently completed to enable the finger to be passed and the presentation, which was a shoulder one, to be made out. It was my intention to dilate with a Bossi's dilator, but the cervix felt so thick and resistant that on consultation with Dr. Doran, who was present, I determined to perform hys-

terectomy. This was carried out as rapidly as possible by the supra-vaginal method, and on removal of the uterus I immediately extracted from it the living fœtus, which proved to be the monstrosity which is reported on by Dr. Cuthbert Lockyer, who assisted me at the operation.

On opening the uterus, a small intra-uterine myomatous tumour was found near the fundus. Subsequently the uterus itself, with the placenta, was sent to Dr. Cuthbert Lockyer for examination. A point I wish to notice is, that there could have been but *very little liquor amnii present.* None escaped when the examination was made, and certainly very little in section in the uterus during the hysterectomy. The recovery, with the exception that some hallucinations returned for a few nights, was uninterrupted. She is now in perfect health.

With regard to the fœtus, it evidently comes under Kleb's classification, adopted by Neugebaur, of "gynandroid," "feminine and complete," where the external genitals approach the masculine type, and the internal genital organs are feminine, more or less developed. Also, it adds another to the many instances in which psychic influences on the part of the mother have to be accepted as probable factors in the causation of the pseudo-hermaphroditism, insanity being present in one of the parents in many instances. The coincidence is also interesting that the mother received a severe shock on being approached by a beggar who had neither feet nor hands during the early part of her honeymoon. Finding subsequently that she was pregnant, she became convinced that her child would be a monster.

With regard to the operation, there are three points obviously open to criticism: (1) Why terminate the pregnancy and not allow it to proceed for the full term? (2) Why perform the radical rather than the conservative operation? (3) What was the justification for the view that the uterus was myomatous, when the pathological report of the supra-cervical portion does not bear this

out further than by the presence of the small interstitial myoma found in it ?

To the first, the reply is the mental and physical condition of the woman, the strong element of heredity, the belief that the lower segment of the uterus was myomatous, and the uncertainty as to its general myomatous state. To the second, a portion of the reply to the first also applies here, taking into consideration the mental risk to the woman by the chance of another pregnancy. It was also thought that there was less risk to her than would attend the division of a myomatous uterus. To the third it was clear that the uterus was not normal in the cervical zone, and this was ascertained on dilatation. Though no distinct tumour could be defined, the uterus was considerably enlarged posteriorly, and very hard. There was also the irregularity of the outlines of the uterus. In connection with this point the very small quantity of liquor amnii has to be remembered.

Dr. Cuthbert Lockyer's Macroscopical Report.

"The placenta is normal in appearance, size, and position.

"The uterus contains one myoma only ; this is situated in the posterior wall, midway between peritoneum and mucosa. It is a small body, oval in shape, with its longest diameter measuring one inch, and on section shows hæmorrhagic areas in its interior. The rest of the uterine wall seems perfectly normal. On the posterior aspect of the right cornu the peritoneum of the uterus is studded with pink, glistening, jelly-like granulations. The nature of these bodies is uncertain ; sections will be prepared of the same. The Fallopian tubes appear normal in all respects. The stumps of the round ligaments show that these structures are hypertrophied. The left ovary on section shows a corpus luteum, measuring ½ an inch in its longest diameter. The ovaries are thin, flattened out, very puckered, and are studded with the same type of granulations referred to as existing on the back of the left cornu of the uterus.

"The fœtus measures 14 inches in length. The cranium is perfect, but there are several facial abnormalities. These include complete hare-lip and cleft palate, absence of the right palpebral fissure, its place being occupied by the orbito-nasal groove, which runs from the angle of the nose upwards and outwards to the fronto-malar junction; in the centre of this groove pressure reveals a shallow and imperfectly developed orbit. The ears are perfect, the body is perfect, the sex is hermaphrodite. The genitals externally present a stunted penis in a state of complete hypospadias. At the root of the penis a small slit-like aperture leads into a canal which passes inwards for half an inch. The scrotum is bifid, presenting as two pouches on either side of the peritoneum; these lead into the infundibuliform processes of peritoneum on either side. Internally there are seen the normal female genitalia, consisting of uterus, Fallopian tubes, and ovaries; no testes can be found. The kidneys and ureters are normal. The external genital aperture ends blindly before reaching the external os uteri, the upper part of the vagina being represented by a fibrous cord.

"No urethral aperture can be found leading to the genital passage, and the bladder itself appears rudimentary."

Histological Report.

"A section has been taken through the uterine muscle and peritoneum to show the structure of the nodules adherent to the peritoneum. These are composed of coagulated lymph, which is undergoing organisation. The muscle tissue beneath the peritoneum is very œdematous, and the peritoneum itself is thickened.

"The myoma present has for the most part a very dense and compact structure, but it contains small areas of myxomatous and hyaline degeneration.

"There is a strand of decidual tissue adherent to the uterine muscle; the latter is infiltrated with decidual cells and leucocytes for a short distance. The muscle-bundles

are widely separated by lymphatic clefts, and the vessel-walls are hypertrophied. There is nothing abnormal to pregnancy in these changes."

Dr. Amand Routh asked if the peritoneum was intact over the entroverted viscera, and whether the umbilical cord broke up into its constituent vessels, which ran along separately over the serous membrane, as usually obtained in these cases.

ANENCEPHALIC FŒTUS.

Shown by Dr. Macnaughton-Jones.

The patient, aged 24, was married for four years. Three months after her marriage she aborted, and from the description given by herself and her husband, it would appear to have been a molar pregnancy. In the same year she again conceived, and was very ill during her pregnancy, which terminated in the sixth month. The fœtus was dead, but perfect. She again conceived thirteen months subsequently, the pregnancy terminating at full period with a living child, which is alive and healthy. Ever since this labour she has had a vaginal discharge, for some days before each period, which latter has always been attended with considerable pain; in fact, she has never felt well.

The patient consulted me for dragging pains in the lower part of the abdomen and inability to take exercise. She was last unwell two months previously. When I saw her there was no discharge from the vagina, but later on a slight sanguineous discharge appeared. The pains increasing, with recurrent sickness, she was kept under observation, and on the seventy-ninth day of the pregnancy a considerable discharge of pus tinged with blood escaped from the uterus. The report on the discharge was as follows:

"The discharge is highly purulent and contains a very

large number of organisms; these are chiefly bacilli which retain Gram's stain. The gonococcus is present in fair numbers."

On the following day I operated and removed the fœtus exhibited.

Dr. Cuthbert Lockyer's report on the fœtus and product of conception was as follows:

"The calvarium is represented by a flaccid membrane a few lines in thickness, on opening which the base of the skull and the foramen magnum are exposed, without the intervention of any brain tissue. The orbital plates are present, and the squamous portions of the temporal bone are outlined. The occipital bone is represented by its basal part only, the os epactal being entirely absent. The petrous portion of the temporal bone is represented by membrane only. This is, without doubt, an anencephalic."

There was recurrence of a purulent discharge on the sixth day after operation. From this time the uterus was douched and cleaned out daily, and various applications were made, succeeded by iodoform packings. Gradually the discharge lessened and the uterus diminished in size, the cavity of seven inches at the time of operation being reduced to five inches. She had a period five weeks after the operation, but when this ceased some discharge showed itself, which again proved to contain the gonococcus.

Fifty days after the operation she was seized with severe abdominal pain. The temperature rose to 102·8°, and the pulse to 112. The next day the temperature rose to 103°. There was now pain and tenderness over the lower part of the abdomen. On the following day I performed cœliotomy, removing both tubes and ovaries. On viewing the pelvis I found the rectum and the uterus covered with soft lymph posteriorly, and layers of the same exudation spread in various directions over the pelvic viscera and the bowel. The right tube was especially enlarged and inflamed, and pus was flowing from its fimbriated extremity. The tubes were removed

up to the uterine cornu, from which a small wedge-shaped portion was taken before closure.

With a small piece of natural sponge I carefully cleaned off all the exuded lymph from the bowel and pelvic surfaces, then cleansing the pelvis with a weak formalin solution. The patient is now perfectly well. I have examined the uterus a few times since the operation, and it appears quite healthy. There is no discharge.

Bacteriological Report.

"Coversmear preparations were made from the pus in the tube, and it proves to contain only a very few bacteria, all of which are the gonococcus. Various culture media have also been inoculated from the pus, but the medium has in each instance remained sterile."

Histological Report.

[Unfortunately, the right tube, *the larger of the two*, which was removed separately, was not sent to the laboratory.]

"The specimen consists of the left Fallopian tube and the ovary united by the mesosalpinx, and the right ovary.

"The tube was slit open longitudinally. In doing this it was found to contain pus, and from this films were prepared for bacteriological purposes.

"The lumen of this tube is divided into segments by bridles of fibrous tissue. The mucosa is very swollen and succulent, and pouts out beyond the cut edges of the muscular wall. The latter is not notably thickened, the stress of the inflammation falling on the mucosa alone.

"The left ovary is slightly enlarged. It contains several small cysts, which on microscopical examination prove to be distended Graafian follicles. There is some round-celled infiltration in the cortex of the ovary, just beneath the tunica albuginea. A well-marked epithelial lutein cyst is seen, the epithelium having a columnar shape. No

healthy follicles have been found. The density of the stroma varies; in parts there is œdema, in parts fibrosis. The general condition is one of chronic oophoritis.

"The right ovary is smaller. It contains a cyst, whose diameter is equal to that of a shilling, formed by degeneration in a corpus albicans. There are many follicles containing ova. In several the ova persist, even though the follicles are quite cystic. There is a good deal of dispersed degenerated lutein tissue throughout this ovary.

"The general condition is that of chronic oophoritis."

Dr. Amand Routh thought a careful examination of such an early specimen (three months) might clear up some of the doubtful points in the etiology of these malformations. Of what was the membrane composed which in this case enclosed the empty cerebral cavity? Was it dura mater? It is still undecided whether this malformation is due to a non-closure of the neural arch and subsequent escape of the embryonic cerebral tissues, or to a developmental absence of brain, and a consequential failure of the protective vault-bones and pericranium to develop.

Dr. Macnaughton-Jones: From Dr. Cuthbert Lockyer's report, in which he said that the calvarium was represented by a flaccid membrane a few lines in thickness, and that the petrous portion of the temporal bone was represented by membrane only, he did not believe that the membrane was dura mater. He would ask Dr. Lockyer to state his views on the questions raised by Dr. Amand Routh.

A CASE OF CHORION EPITHELIOMA.

By Dr. Hellier.

(Read by Mr. Targett.)

I show to-night a uterus removed by vaginal hysterectomy for chorion epithelioma following abortion. The patient has recovered from the operation, and has regained excellent health.

History.—Mary L—, aged 44, residing at Pontefract, was admitted into the Leeds Infirmary on February 18th, 1905, on account of uterine hæmorrhage after abortion.

She states that she enjoyed uniformly good health before the present illness. She has been married twenty-three years, and has borne ten children, all the labours being normal. She has usually menstruated with great regularity without excess or pain. She has suffered a good deal from leucorrhœa.

She ceased to menstruate in June, 1904. When about three months pregnant she had a fall, but no immediate symptoms developed. The abdomen did not continue to increase in size, but menstruation did not take place. In the December following she had a miscarriage, for which she did not seek medical advice at the time. From her description she seems to have passed an ovum of about three or four months. After this there was a slight vaginal discharge, but she went about her work until January 30th of this year, when she had severe hæmorrhage, which recurred ten days later. She came into the hospital on February 18th; I am sorry to say that I did not examine the case myself at this time. It was supposed to be a case of incomplete abortion and she was curetted by my house-surgeon. He has made a note that there was a good deal of hæmorrhage, that a large amount of "placental tissue" was removed, and that the appendages were normal on bimanual examination. There was recurrence of hæmorrhage a fortnight later, but she went home on March 18th, and seemed to be much better. She came under the care of Mrs. Orford, of Pontefract, who asked me to take the patient in again because there had been repeated hæmorrhage, with offensive discharge and symptoms of sepsis.

On May 13th I examined her in the infirmary under ether, having previously obtained her permission to extirpate the uterus if necessary. The uterus was found to contain new growth, with stinking discharge. It was but slightly enlarged and was perfectly mobile, and with vulsellum forceps was so easily drawn down to the vulva that I removed it by vaginal hysterectomy, although in such cases I should usually advise the abdominal route,

because chorion epithelioma has a tendency to perforate the uterine wall and involve the omentum or bowel. The operation was easy, and I completed it by closing the vaginal wound and fixing the stumps in the vaginal incision. The fundus was quite free from adhesions, and smooth on its outer surface. No glands or infiltration felt in the pelvis. She made a very good recovery, without complication; she has rapidly gained health and strength since the hysterectomy. On May 10th, before operation, she weighed 7 st.; on June 4th, 7 st. 12 lb.; on June 12th, 8 st. 7¾ lb.

The further progress of the case will be reported at some future time.

Description of specimen.—The uterus is shown with the appendages of one side. The interior is exposed by a longitudinal incision in the anterior wall. The uterus now measures in length 3¼ inches; it has shrunken a little since removal.

The walls of the fundus are thickened, especially the anterior wall, which has a maximum thickness of about 1¾ inches, and a mass of new growth projects into the uterine cavity. The new growth can be seen to invade the thickened wall. It does not appear to have reached the serous surface. At the time of operation the free surface of the growth was rough, friable, easily bleeding, and covered with a foul necrotic layer. The appendages did not appear to be affected.

The section shown was made by Mr. Targett, and he reports as follows: "This growth has the characteristic appearance and structure of chorion epithelioma of the uterus. The distinction between the syncytium and Langham's cells is well marked, and the muscle substance is deeply invaded. No chorionic villi have been seen in it. Owing to the action of the preservative fluid the tissues have cut badly."

Remarks.—This is the third case of the kind that I have had the opportunity of showing to this Society (see 'Transactions,' vol. xl, p. 114, and vol. xlv, pp. 242–254).

The patient, as in so many of the cases recorded, had had exceptionally good previous health. There is no reason here to suggest that there had been vesicular degeneration of the chorion. The most satisfactory point in the case is that it was possible to remove the uterus, and that the immediate result has been so very good.

I shall be very glad, if it is thought proper, to submit the specimen to the pathological sub-committee of this Society. In conclusion, I have to thank Mr. Targett for kindly showing the specimen for me.

On the motion of Dr. Cullingworth referred to Pathology Committee.

MALIGNANT GROWTH OF CERVIX IN A GIRL OF EIGHTEEN.

(With Plate XI.)

Shown by Dr. F. N. Boyd.

Mrs. Boyd showed a malignant tumour of the cervix uteri removed from an unmarried patient, aged 18, who had suffered from menorrhagia since the onset of the catamenia four and a half years previously.

The specimen consisted (1) of the amputated cervix, to the anterior lip of which was attached a pedunculated lobulated cauliflower-like growth of the size of a walnut; the posterior lip also was surrounded by a friable papillary area; (2) of the uterus and right appendages removed by vaginal hysterectomy immediately on the pathological report of malignancy—probably an adenocarcinoma. Later investigation, however, suggested endothelioma.

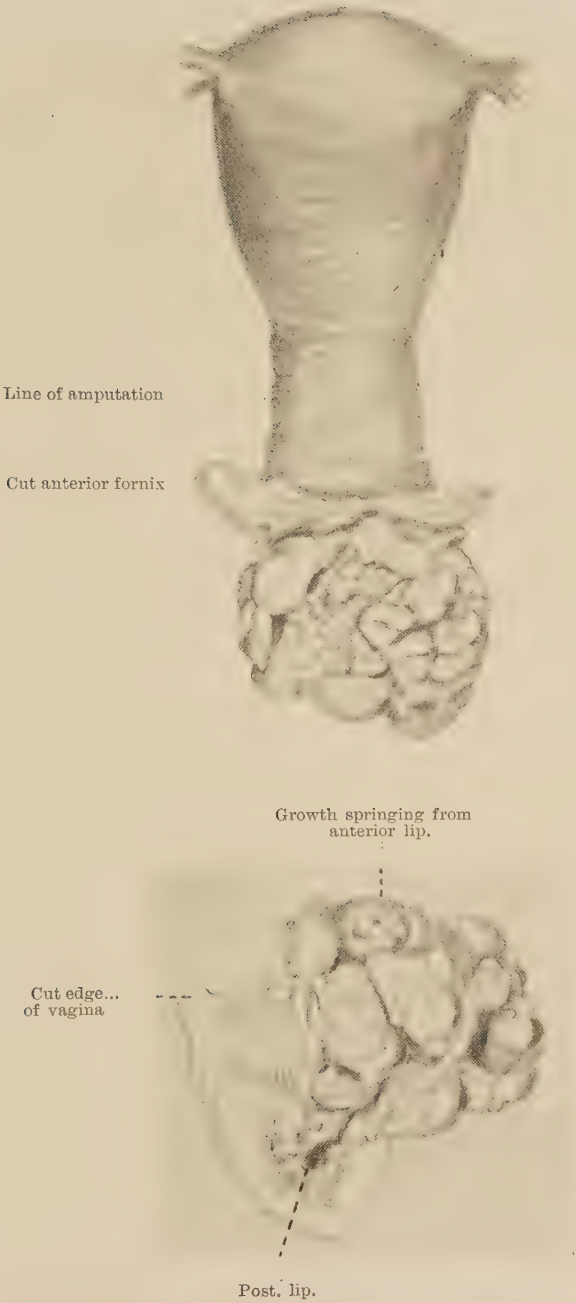
K. T—, aged 18, admitted June 21st, 1904. Catamenia at 13½, always profuse. Periods always irregular, 7–14 days. Dysmenorrhœa last year; for six months has been

free from pain at periods. For last six months loss has increased. Last two to three months almost constant discharge. Five weeks ago noticed something protruding from vulva, and discharge became offensive. Difficulty in micturition. Seen as out-patient by Miss Ivens, who found a growth on the anterior lip of the cervix and removed a piece for microscopic examination, and admitted the patient to the hospital. On examination, there was found to be a growth of the size of a small walnut attached to the anterior lip by a broad pedicle. The growth was truly cauliflower-like, composed of a mass of truncated papillæ, deep raspberry-red in colour, and covered apparently by intact epithelium. The whole os was surrounded by an area of a slight degree of papillation; the part round the posterior lip was friable and bled readily. Projecting from the anterior wall of the vagina, and ending in the pedicle of the growth, was a central ridge, deep purple in colour, such as might be found representing a septum in an incomplete septate vagina. As the malignant nature of the growth was not quite clear, I amputated the lower half of the cervix and sent the specimen to the pathologist. After removal, it was noted that the growth had shrunk considerably in size, and changed from bright red to a deep purple colour, a sign of its marked vascularity.

Pathologist's report was as follows:

"Papillomatous growth on anterior lip of cervix. Piece removed consists of the vaginal cervix, with half an inch of the cervical canal above. From the anterior lip a deeply lobed papillomatous growth is springing, measuring $1\frac{1}{2} \times 1\frac{1}{4}$ in.; its surface is smooth; the posterior lip is to the naked eye much less affected. On section the stalk is yellowish-white in colour, the growth apparently invading the cervical wall. The surface of the tumour was red in colour, and it appeared very vascular.

"Uterus with right ovary and tube. The uterus has had lower part of cervix amputated; the rest of the cervical canal measures $\frac{3}{4}$ inch; the cavity of the body measures $1\frac{1}{4}$ inch. The parts appear perfectly healthy.



Illustrating Dr. F. N. Boyd's specimen of Malignant Growth of Cervix in a girl of 18.

Adlard & Son, Lmb.

"The right ovary contains little cavities of the size of a pea, filled with clear blood-stained fluid.

"*Histology.*

"1. Section through papillomatous growth on anterior lip:

"Tumour consists of cells of carcinomatous type which are rapidly proliferating and stain badly. The arrangement is an acinous one, but the lumina of the new (?) glands are mostly filled with cells. There is round-celled infiltration of the advancing margin.

"2. Section through posterior lip, taken through whole thickness of cervical wall into cervical canal:

"Cervical glands appear normal, and the columnar epithelium lining canal is normal. The rest of the cervical wall is riddled with blood-vessels (veins), some containing, I think, carcinomatous cells.

"*Diagnosis.*—Probably an adeno-carcinoma, but sections do not show the origin—it probably originates from the cervical glands. The tumour is certainly malignant."

Consequently, on this report, on July 4th, 1904, I completed the removal of the uterus *per vaginam*, leaving one ovary. In addition, I removed a further strip from the whole circumference of the vagina. Microscopic examination of the upper cervix and body of the uterus and of the vaginal strip showed no extension, either upwards or downwards, of the disease. The patient made an excellent recovery, and is now, a year after the operation, well and free from recurrence. She has had no symptoms of the menopause. Nothing can now be felt of the central ridge in the vagina. The pathological report is read as it was given at the time, but later and more careful investigation of the specimens has caused our pathologist, Miss Woodcock, to modify her opinion as to the origin of the growth, and to regard it as of an endothelial nature. It is with the hope of obtaining light from other Fellows of the Society as to the exact pathological nature, as well as on account of the rarity of malignant growths of the cervix

under the age of 20 that I have shown this specimen to-night.

Dr. HERMAN said that Mrs. Stanley Boyd's case seemed to be one of that rare kind of growth, the true "cauliflower excrescence," first fully described by Sir C. M. Clarke—a branching vascular growth springing from a narrow stalk and collapsing after removal. Not every cancer having a slight resemblance to a cauliflower was a true "cauliflower excrescence."

On the motion of Dr. FAIRBAIRN the specimen was referred to the Pathology Committee.

LOOP OF SMALL INTESTINE FOUND ADHERENT TO THE PEDICLE SIX MONTHS AFTER OVARIOTOMY.

Shown by Mr. HERBERT J. PATERSON.

MR. HERBERT PATERSON showed a specimen obtained *post-mortem* showing a portion of small intestine adherent to the stump of an ovarian pedicle.

The patient was an unmarried woman, aged 25, from whom a solid ovarian tumour was removed in June, 1903.

In August, 1903, she was admitted into the London Temperance Hospital, under the care of Dr. Parkinson, suffering from wasting and vomiting due to pyloric cancer. She was extremely emaciated, and in four days lost 11½ lbs. in weight. Mr. Paterson performed anterior gastro-jejunostomy, and the patient left the hospital within three weeks much improved and able to eat solid food. She died of general dissemination in December, 1903, and, through the courtesy of Dr. Percy Lush, a *post-mortem* examination was obtained.

The gastric tumour proved to be a carcinoma undergoing colloid degeneration. On examining the pelvis a portion of ileum about four inches in length was found acutely kinked in three places, the two distal kinks being firmly adherent to the stump of the broad ligament.

The following details were obtained from the registrar of the hospital where the first operation was performed: "The tumour removed was a large, solid ovarian on the right side of the uterus and with a broad pedicle. There was slight ascites at the time of the operation. The pedicle was treated in the usual way. The bowels were opened on the fourth day after operation. Microscopically the tumour proved to be a carcinoma."

The condition found might be partly accounted for by the presence of chronic peritonitis at the time of operation, but the specimen emphasised the importance of leaving the pedicle with a smooth surface, free from knots, but especially of obtaining early movements of the intestine. With this object he usually gave three or four grains of calomel within twenty-four hours, or even earlier, and also hypodermic injections of strychnine every six hours.

The gastric tumour was probably the primary and the ovarian a secondary growth.

Notwithstanding the extreme kinking there were no signs of intestinal obstruction during life. The stump had been treated in the usual way by sewing over it a peritoneal flap.

(The specimen is in the museum of the London Temperance Hospital, the gastric specimen in the museum of the Royal College of Surgeons.)

Mrs. Boyd asked Dr. Paterson how the stump had been treated—whether care had been taken to cover in the raw stump with peritoneum, as this seemed to be the best way of preventing adhesion to intestine.

Dr. Herman asked if anyone had ever opened an abdomen within a few weeks after abdominal section without finding adhesions. He himself had never met with, heard of, or read of such a case. Adhesions were the invariable immediate result of abdominal section, and in course of time were absorbed.

Dr. Macnaughton-Jones quite agreed with Mrs. Stanley Boyd as to the importance of completely covering over all pedicles and raw surfaces. It was preferable to do this completely, even at the cost of prolonging the operation. His plan was, after forty-eight hours to begin with repeated grain doses of calomel, withholding this if it disagreed, and then giving an enema. Where it could be tolerated, instead of pushing calomel he pre-

ferred the administration of a saline, given in the manner recommended by Howard Kelly, in some cases—drachm doses of sulphate of magnesia given at frequent intervals until five doses had been administered. He thought the mistake was frequently made of being over-anxious with regard to the bowel, and such over-anxiety led possibly to mischievous interference.

Mr. Paterson, in reply, stated that he was informed that a peritoneal flap was sewn over the stump in the usual way. He suggested that it was better to use a continuous rather than an interrupted suture, the knots of which left an uneven surface. It was not his experience that calomel caused vomiting, rather the reverse. He quite agreed with Dr. Macnaughton-Jones as to the value of salines, and he usually gave a seidlitz powder the morning after the calomel. There was no doubt that most abdominal operations were followed by some adhesions, but it seemed reasonable to believe that the more vigorously the intestines were kept moving the less likelihood there would be of these adhesions becoming permanent.

OCTOBER 4TH, 1905.

W. R. DAKIN, M.D., President, in the Chair.

Present—38 Fellows and 2 visitors.

Books were presented by the Westminster Hospital Staff; Det Kjobenhavnske Medicinske Selskabs; l'Université Royale de Norvége, Christiania; Gesellschaft für Natur- und Heilkunde, Dresden; Dr. Osterloh; Mr. Bland-Sutton; and Dr. McKerron.

Francis W. N. Haultain, M.D.Edin. (Edinburgh); Victor E. Collins, M.B.Lond. (Capetown); R. P. Ranken Lyle, M.D.Durh. (Newcastle-on-Tyne); Rachel N. Cohen, M.B. Calc., F.R.C.S.I. (Calcutta); and Alfred Thomas Masters, L.S.A. (Northiam), were declared admitted.

Robert James Blackham, Capt. R.A.M.C., D.P.H.Lond., was proposed for election.

REPORT OF THE PATHOLOGY COMMITTEE.

Dr. Hellier's Specimen (with Microscopic Section) of Chorion Epithelioma (*see p.* 310).

WE have examined this specimen and the microscopic section thereof, and agree that it is a typical chorion-epithelioma as described by the exhibitor.

Mrs. Boyd's Specimen (with Microscopic Sections) of Malignant Disease of Cervix in a Girl aged 18 (*see p.* 313).

We have examined this specimen and the microscopic sections thereof, and find that the naked-eye appearance is that of a multilobular polypoid mass, with a smooth surface, growing from the anterior lip of the cervix uteri. Microscopically we find the structure of the growth presents appearances which may be grouped under four heads:

(1) Capillaries containing blood-corpuscles, and lined with endothelium in an early stage of proliferation, the cells being mostly in single layer, but in places in several layers.

(2) Spaces containing blood and lined with a single layer of flat endothelium, imbedded in a mass of tissue which resembles proliferated epithelium.

(3) Tissue resembling an ordinary papillary adeno-carcinoma.

(4) Solid branching columns and masses of cells.

We believe that these appearances may indicate that the growth began in the endothelium of the blood-vessels, though evidence of this can only be seen in the younger parts.

Herbert R. Spencer.
Thomas G. Stevens.
Corrie Keep.
Henry Russell Andrews, *Chairman.*

July 19*th*, 1905.

A CASE OF ECTOPIC GESTATION WHICH APPARENTLY RUPTURED TWICE.

By J. C. Holdich Leicester, M.D., B.S.Lond., F.R.C.S.Eng.,

Resident Surgeon the Eden Hospital for Women, Calcutta.

K—, a Hindustani Mohamedan woman, aged about 35, married sixteen years, attended the out-patient department of this hospital on October 4th, 1904, for severe pain in the lower abdomen and irregular menstruation. The following history was afterwards obtained from the patient with much difficulty, as she was rather a dull and stupid woman. About the end of September she suddenly experienced a severe pain in her lower abdomen, chiefly on the left side, shooting down the left thigh, which came on without any apparent cause. She felt faint and was unable to move on account of the severity of the pain, which was cramp-like in character. She was treated outside the hospital by a native midwife, but received little, if any, benefit. Menstruation had always been irregular since the birth of her last child, seven years ago, and often came on a fortnight late, usually lasted about five days, and was quite painless. Her last period was about the beginning of July, and she saw nothing in August or September. She stated, however, that she did not believe she was pregnant. (It was afterwards ascertained from her friends that she had thought herself pregnant, and had taken some medicine, which she obtained from a native midwife at the end of September, with the idea of bringing on her periods again.) In August she suffered from vomiting, more especially in the early morning, but also sometimes after taking food. About this time she noticed pain and fulness of the breasts, which continued up to the time of her admission

into hospital. Bowels were very constipated, micturition normal. There had been a whitish vaginal discharge since the pain began. She had suffered from what was apparently syphilis about three years ago, and has had fever off and on for about seven years. Since the pain in the lower abdomen began the fever had been rather worse. Otherwise her general health had been good. She had had three children, the last seven years ago, and one abortion at the fourth month eight years ago. On examination of the abdomen, beyond tenderness, and slight distension over the lower part, nothing abnormal could be detected. It was resonant on percussion. Vaginal examination revealed some prolapse of the anterior vaginal wall, the uterus lying slightly anteverted and anteflexed, freely movable, and somewhat enlarged (to about the size of the organ at the fifth or sixth week of pregnancy). There was nothing whatever abnormal to be made out on either side of or behind the uterus. The bowels were much loaded. The heart and the lungs were normal. The general condition of the patient was bad, the pulse being rather weak and rapid, and respiration being hurried. She was at once admitted as an in-patient, and carefully watched. The bowels were freely opened with aperients and enemas, and the patient was put on a nourishing diet and a little stimulant given. She steadily improved from this time and appeared to become quite well. Temperature had varied between 97° and 99° F. during her stay in hospital, and there was a white discharge from the vagina, but no trace of blood. She was discharged on October 13th, and on examination then nothing could be felt in the abdomen. By the vagina the condition was found much the same as on admission. The uterus was about the same size, there seemed to be slight increased resistance to palpation in the *right* fornix, but nothing definite was felt. On the left side and in Douglas's pouch nothing whatever abnormal could be detected. A soft rubber ring pessary was inserted to relieve the prolapse of the vaginal wall.

She was not seen again until the evening of October 19th, when she again attended, and the following further history was obtained: She was quite well for two days after being discharged on October 13th, but on the third night, without any apparent exciting cause, she got severe pains in the lower abdomen on left side, and felt something give way. She became very faint, and stated that she actually fainted, and thought she was going to die. She could not bear to touch her abdomen, nor to move in bed, as the pain was so acute. She sent for a native midwife, who told her she would soon get allright, and gave her some country medicine to take internally and applied some remedy to the vagina. She got no relief from the treatment; the pain became worse, and there was a feeling of heaviness in the vagina. There had been a slight discharge of white mucus stained with blood after the second attack of pain, but no passage of a cast or anything of this nature. She also had great pain in passing water.

On examination.—The abdomen was distended and very tender. In its lower part a tumour could be felt rising up out of the pelvis, but its outline or relations could not be made out owing to the great tenderness.

Per vaginam.—There was a fulness felt behind and on the left side, but tenderness was so great that a satisfactory examination was impossible. Chloroform was therefore administered and a further examination made.

A smooth, rounded, regular tumour, dull on percussion, could now be distinctly made out rising out of the pelvis rather more to the left than the right side, semi-cystic, and reaching about two inches above the pubes. There was no dulness on either flank.

Per vaginam.—Uterus lying forwards, pushed to the front by a semi-cystic tumour lying behind and to the left of it of about the size of a large orange.

The patient's general condition was rather bad, but there were no signs of further hæmorrhage, or other urgent symptoms, so it was decided to postpone operation

until the following morning unless further complications supervened.

On October 20th, under chloroform, the abdomen was opened by a three-inch incision in the median line, commencing about one inch below the umbilicus. On entering the peritoneal cavity the omentum was found extensively adherent in the pelvis; it was ligatured low down in nine sections, divided, and displaced upwards. On further exploration a collection of blood and blood-clots was found on the left of the uterus, shut off from the general cavity by adhesions. The clots were rapidly cleared out with the hand and the pelvis then flushed out with normal saline solution, all bleeding having seemingly stopped. The left Fallopian tube was found considerably distended at the uterine end: it was ligatured at this end and (after the infundibulo-pubic ligament had also been ligatured) removed, one or two small vessels in the cut broad ligament being afterwards separately tied. The ragged portions of the omentum adherent in the pelvis were easily detached and removed. The pelvis was carefully sponged out and then flushed again with normal saline solution. The right ovary, tube, and uterus were all found normal, except that the latter was a little enlarged. The left ovary could not be detected. The abdomen was closed with through-and-through silkworm-gut sutures, and dressing applied. Patient stood the operation well, but as the pulse was a little weak $\frac{1}{15}$th grain of strychnine was given hypodermically. The stitches were removed on the tenth day, union being good.

She was discharged on November 21st, just a month after operation, the abdominal scar soundly healed. *Per vaginam* the uterus was found to be normal in size, lying a little anteverted. There was some slight induration, behind and on the left, still to be felt.

About eight ounces of blood-clot and blood were removed in all, some of which appeared to be of older origin than the rest, as it was partially organised. The tube on examination was found to be dilated to about the size of

a large walnut at its uterine end, the outer end being apparently normal. On section there was extensive interstitial hæmorrhage into its walls and an organised clot, in one part of which was found what seemed to be an amniotic cavity, about $\frac{1}{2}$ in. by $\frac{3}{16}$ in.; no trace of a fœtus could be detected either in the tube or in the blood-clot removed, nor was there any trace of the left ovary in the parts removed.

I am indebted to Lieut.-Col. F. S. Peck, I.M.S. (for whom I was temporarily acting at the time), for his kind permission to publish the case; to Captain Owen Thurston, I.M.S., Resident Surgeon of the Medical College Hospital, for his valuable help and assistance before and at the operation, and to the Clinical Clerk, Miss Flora Singh, for her careful notes.

A microscopic examination of the specimen was kindly made for me by Capt. Leonard Rogers, I.M.S., the acting Prosessor of Pathology at the Medical College, Calcutta, who has furnished the following report:

Microscopic section of ectopic gestation.—A longitudinal section through the Fallopian tube shows from without inwards the wall of the tube, which merges into a thick layer of decidual membrane, which at one end of the section shows large blood-containing sinuses of the placenta. On the inside in places chorionic villi are seen projecting into the deeper layers. No ovarian tissue was found in the section.

I saw the patient again on January 16th of this year. The scar was quite sound, the uterus lying in normal position except for slight deviation to the left; it appeared quite movable and no thickening could be felt anywhere.

The case seemed to me worthy of record from several points of view, as it illustrates the very vague and indefinite symptoms and signs that may occur in the rupture of a tubal gestation; as I think the after-history of the case clearly points to the conclusion that this had occurred when the patient was seen on the first occasion. The total absence of all signs made the diagnosis very difficult.

The general symptoms of the case undoubtedly pointed to some abdominal trouble, but the aspect of the patient was not that of internal hæmorrhage but more like that of peritonitis, and the remarkable way in which she recovered made the diagnosis still more puzzling. It would seem that the hæmorrhage on this first occasion must have been very slight and quickly checked, and probably a mild peritonitis may have arisen which set up the adhesions found at the operation. The second rupture would probably have set up more severe hæmorrhage if those adhesions had not been present, and so acted as a check to the bleeding. The decision to postpone the operation until the condition of the patient had improved seems to have been fully justified by the result. I am very doubtful whether the outcome would have been so satisfactory had she been operated on when first admitted, on the second occasion. As to the question of the advisability of operating at all, I scarcely think there could have been two opinions, and n this decision Dr. Thurston entirely concurred with me.

A CASE OF EXTRA-UTERINE GESTATION; OPERATION DURING THE SIXTH MONTH OF PREGNANCY.

By Herbert J. Paterson, M.B., F.R.C.S.

Mrs. R. L—, aged 32, suffering from abdominal pain and metrostaxis, was admitted into the London Temperance Hospital on May 29th, 1903, under the care of my colleague, Dr. Parkinson.

Her last regular period ceased on January 12th, 1903. On April 13th—*i. e.* after three months' amenorrhœa—she had a sudden attack of metrorrhagia, accompanied by abdominal pain, headache, constipation, vomiting, and frequent micturition. The attack quickly passed off,

although she continued to lose slightly up to the time of admission into the hospital. On May 28th she had a recurrence of severe pain and was admitted on May 29th.

On admission the patient looked ill and anæmic, and complained of considerable abdominal pain, especially in the left iliac fossa. Her pulse was 132, temperature 100°.

Examination.—Lower abdomen occupied by a swelling, for the most part hard, but elastic in places, reaching, on the left side, halfway to the umbilicus, and on the right extending upwards three fingers' breadth above Poupart's ligament.

Per vaginam.—Cervix pressed against symphysis, texture firm, canal closed. The whole of pelvic excavation occupied by a hard convex swelling.

Bimanually.—The pelvic swelling is continuous with that felt *per hypogastrium*, and reaches on the left side halfway to the umbilicus, and on the right side about three fingers' breadth above Poupart's ligament. The uterus is close behind the symphysis and to the left.

Per rectum.—The swelling is above and in front of the bowel.

I saw the patient in consultation with Dr. Parkinson, and we agreed that she had a ruptured extra-uterine gestation with pelvic peritonitis, and she was accordingly transferred to my care. During the next few days the patient's condition rapidly improved, the internal bleeding apparently ceased, and all pain disappeared. On June 11th the swelling was distinctly smaller on the left side, but more prominent than before, although to what extent this prominence was due to matted intestines was difficult to determine. On June 18th I suspected that the fœtus had not perished, and therefore the patient's girth was carefully measured, and was 29½ inches, 1½ inch below the umbilicus. To the right of the middle line the swelling reached to within 1½ inch of the umbilicus. Towards the middle of July the patient had two or three slight attacks of abdominal pain.

Examination on July 19th showed that the patient's girth, as measured 1½ inch below the umbilicus, had increased from 29½ to 31 inches. The lower and right half of the abdomen was occupied by a globular, tense, elastic swelling, rising out of the pelvis and reaching to within one inch of the umbilicus. A smaller rounded swelling was felt to the left of the main swelling.

Per vaginam.—Cervix to left, high up, and close against the symphysis. Occupying the right side of the pelvis was a tense, smooth, globular swelling continuous with that felt on the right side of the abdomen. It was fixed. The swelling on the left was identified as the uterus considerably enlarged.

On July 22nd, after consultation with Sir William Collins, I opened the abdomen in the middle line. The uterus was considerably enlarged. To the right of the uterus was a large, tense, elastic, dark red swelling, apparently in the broad ligament. There were many adhesions of small intestine to the front and upper part of the swelling. Some of these were recent, others of some duration. In separating them the peritoneal coat of the intestine was injured in several places. The swelling was incised and the placenta was found on the front and upper wall of the sac. The deeper portion of the placenta was slightly detached. The placenta was rapidly separated and a living fœtus removed. There was free hæmorrhage, which was controlled temporarily by packing the sac with dry gauze. After a short interval the gauze was removed and the sac irrigated with hot water. Many bleeding points were clamped and ligatured. About two pints of fairly recent blood-clot were removed from the bottom of the sac, the deeper part of which was lined with a thick layer of laminated blood-clot, some of which was separated and removed. The greater portion, however, was so densely adherent that its removal was impracticable. The sac was sewn up to the peritoneum at the lower angle of the wound, and the remainder of the abdominal incision was sewn up in three layers, the cavity of the sac being

packed with sterilised gauze. The patient was somewhat collapsed at the end of the operation, which lasted just over an hour, but quickly rallied. The fœtus, which weighed 11½ ounces and measured 9½ inches, died a few minutes after removal.

After the operation the patient suffered from vomiting, steadily increasing in frequency and accompanied by a gradually rising pulse-rate. Owing to the condition of the intestine I hesitated to give a purgative on the day succeeding operation, as is my usual practice. On the third evening the patient's condition seemed desperate, she was vomiting frequently, was greatly distended, and had a feeble pulse of 132. As a last resort three grains of calomel were given, followed in a few hours by a turpentine enema. After this she passed a considerable quantity of flatus with some fæces, was much relieved, and slept a little for the first time since operation. A second dose of calomel was given, and the next morning she passed a copious motion, and thereafter her convalescence was uneventful.

The sinus into the sac persisted for over a year, and ligatures were discharged from time to time. During this time she had several small abscesses in her neck which required incision. Eighteen months after the operation the sinus was soundly healed, and she has up to the present time remained in perfect health.

There appear to be four points of interest in this case:

First, the persistence of gestation after two fairly severe and two or three slight hæmorrhages.

Secondly, the difficulty in determining whether the fœtus was living or dead. The rapid absorption of the swelling on the left side led me to hope that the fœtus had perished and that an operation would be unnecessary. It was only after the inflammatory effusion on the left side had been absorbed that there was clear evidence that the swelling on the right was increasing.

Thirdly, the severity of the symptoms caused by intestinal toxæmia due to intestinal paresis.

Fourthly, the prolonged convalescence after drainage in

such cases. Whether the abscesses in the patient's neck were the result of septic absorption from the sinus I am not prepared to say. At any rate, the persistence of the sinus for over a year was a source of considerable inconvenience, and yet I do not think it would have been safe to dispense with drainage.

Mr. Alban Doran made some observations on packing a fœtal sac and on the ligature of its vessels. In 1900 he read before the Society notes of a case of abdominal section two months after the death of the fœtus. The patient died nine weeks later, contraction of the sac having dragged on the mesentery, causing death from inanition. In the discussion some Fellows of the Society maintained that fœtal sacs should not be packed, but this procedure was often necessary to control oozing. The application of ligatures to bleeding points was also unavoidable in most cases, but unfortunately, the silks were apt to become infected, sometimes many months after the operation. When the gestation sac was of the posterior tubo-ligamentary type this infection was often unavoidable, as the deeper part of the sac was formed by the walls of the large intestine.

Dr. Galabin thought that the author was to be congratulated on the recovery of his patient, since he considered that the danger was always much greater when it was necessary to operate during the life of the fœtus. As regards the treatment of the placenta, he thought that a great advantage was gained if it was in any way possible to remove the whole placental site. In his last operation for extra-uterine fœtation after the middle of pregnancy (at about the fifth month and about a week after the death of the fœtus) he had found it possible, by commencing the separation on the unaffected side, and removing the uterus and tying both uterine arteries before interfering with the sac, to remove entire the adherent fœtal sac, including the whole broad ligament in which it originated. The result was that the hæmorrhage was controlled after the ligature of uterine and ovarian arteries, an aseptic field was obtained, the abdomen was closed without drainage, and the patient recovered rapidly without any disturbance.

Dr. Amand Routh considered that packing of the pelvis with gauze after a laparotomy to arrest hæmorrhage was practically invariably followed by a sinus remaining open owing to infection of the ligatures used. He had seen two such cases, in one of which the appendix subsequently became infected also. He thought Mr. Paterson's treatment of the severe vomiting, due to the gauze-packing, by calomel was more likely to succeed than the usual treatment by morphia.

Dr. Handfield-Jones drew attention to the fact that in Captain Holdich Leicester's case the patient had been sent out of the hospital after convalescing from the first hæmorrhage and had been obliged to return owing to the repetition of the loss. He quoted a case which had been under his care in which the patient, after being convalescent for three weeks, had been seized with signs of internal hæmorrhage and collapse on the eve of her departure from the hospital. He thought that these cases showed how dangerous and unsatisfactory was the so-called conservative treatment of extra-uterine gestation. Granted that a certain proportion of cases did recover without operation, it was none the less true that convalescence was often unsatisfactory, and in some instances a later operation was still called for.

Mr. Paterson, in reply, said that complete removal of the sac was impossible in this case, owing to the extensive adhesions between the intestines and the outer wall of the sac. The use of ligatures was rendered necessary by the large size of the bleeding vessels in the placental site. He believed that the old blood-clot at the bottom of the sac became infected owing to its close proximity to the rectum.

DERMOID CYST OF OVARY WITH MINUTE PEDICLE PRODUCED BY TORSION OF MESOVARIUM ONLY.

Shown by Dr. Galabin.

The patient was a married woman, aged 27, and had suffered from pelvic pain and menorrhagia for two or three years. She had worn a pessary for retroflexion. A lump was felt in the left posterior quarter of pelvis, and diagnosed as a small ovarian tumour. On operation, the tumour proved to be dermoid, and the pedicle tore through as it was being drawn up. There were some adhesions to the surface of the tumour, which must have served for its nutrition, but no ligatures were required either for pedicle or adhesions. The tumour was $4\frac{1}{2}$ inches in diameter; the pedicle rounded, $\frac{1}{16}$ inch in diameter, and showed no visible vessels. There was no sign of twist in it, but it evidently originated

by torsion of the mesovarium only, before the broad ligament had been drawn out into a pedicle. The torsion, therefore, must have been of old date; but there was no history of any acute attack of pain or pyrexia. The Fallopian tube was not included, and was left intact.

TUBAL ABORTION PRODUCED BY BIMANUAL EXAMINATION.

Shown by Dr. GALABIN.

THE patient was 38 years of age. Five weeks previously she had weaned her fourth child, aged 8 months, having had one normal period since delivery, three weeks earlier. About the time of weaning metrorrhagia commenced, and continued without cessation. She had no pain. On examination the uterus was enlarged, the cavity measuring four inches, and a firm mass was felt bulging on its right side, which, it was first thought, might be a fibroid. There was a small lump also on the left side. On examination under anæsthetic, the mass on the right was felt suddenly to collapse. Means were not at hand for immediate abdominal section. No symptoms followed, except severe anæsthetic vomiting, but two days later a mass was felt in the pouch of Douglas, similar to that which had been on the right side. Abdominal section was performed after several days, the metrorrhagia meanwhile having diminished but not stopped; as there had been no symptoms of pregnancy, it was thought that an ovarian cyst or hydrosalpinx might have been ruptured. There was no blood free in the peritoneal cavity, but a carneous mole, about 2½ inches diameter, containing no embryo, was found adherent in the pouch of Douglas. The cavity whence the mole came was visible in the right tube, and showed a few chorionic villi. The right tube was removed, the

ovary being left; and a small cystoma of the left ovary, about 2¼ inches in diameter, was removed with the left tube. The patient made a good recovery. The case showed that a tubal abortion might occur with a trivial amount of hæmorrhage and no distinctive symptoms, although sometimes the hæmorrhage was so great as to simulate rupture of a tubal fœtation.

A NECROBIOTIC UTERINE FIBROMYOMA OCCURRING IN PREGNANCY.

Shown by Dr. Frank E. Taylor.

This specimen consists of the body of an enlarged uterus, the right cornu of which contains a globular fibromyoma four inches in diameter. The tumour is solitary and interstitial. When fresh it was soft in consistence and of a bright mahogany-red colour, and of a peculiar fish-like odour. On the right posterior aspect of the inner wall of the uterus is a rounded, slightly elevated, roughened area, which forms the placental site.

The history of the specimen is briefly as follows: A woman, aged 33, was admitted into Chelsea Hospital for Women under the care of Mr. Bland-Sutton on February 28th, 1905. She complained of severe pain in the lower abdomen for the last three days, which for a few days previously had been preceded by a dull ache.

Menstruation commenced at the age of 12. It was always regular, but variable in amount until October, 1904. The last period commenced on October 29th. Since then there had been complete amenorrhœa, though there had been an abundant leucorrhœal discharge.

A month ago on getting into bed the patient had felt a "rick" inside, and since then some soreness had existed in the lower abdomen. This became aggravated so as to

be actually painful on February 22rd, and on February 26th—two days before admission—the pain had become extremely severe.

On examination of the chest, the lungs were found to be normal. The heart's impulse was felt in the sixth space, 1½ inch external to the nipple line. A sharp first sound accompanied by a systolic murmur was heard at the apex, and the murmur was transmitted into the axilla.

Abdominal examination revealed a full, tense, tympanitic abdomen. A tumour as big as a child's head could be felt in the left iliac region and in the loin. It was tender and immovable. It was dull on percussion except in the loin, where it was semi-resonant. Another tumour, soft and ill-defined, could be felt mesially placed in the hypogastric region, reaching up to a line midway between the symphysis pubis and the umbilicus. This was the pregnant uterus.

On vaginal examination the cervix was felt high up and to the left. It was softened. The body of the uterus was pulled up out of reach. The breasts showed signs of activity, and secretion could be expressed from them.

On the evening of the day of admission the patient aborted. A well-formed fœtus 7½ inches long was passed, along with its membranes. The character of the tumour in the left iliac region remained unchanged.

On March 6th, seven days later, Mr. Bland-Sutton removed the uterus by abdominal hysterectomy. Recovery was rapid and uneventful, and the patient was discharged from hospital on March 27th.

Microscopic examination of the necrobiotic fibromyoma showed a very marked deficiency in the nuclear staining of the tissue-cells, which has resulted in an almost total absence of nuclei in the sections, leaving only wavy bundles of fibres which have taken up the stain.

The chief interest of this specimen consists in the fact that in one and the same uterus are seen: (1) evidence of recent pregnancy—viz. the placental site, and (2) a

fibromyomatous tumour undergoing aseptic necrobiosis or red degeneration.

Two specimens illustrating this association were shown before this Society last year—one by Dr. Fairbairn (*vide* 'Trans.,' vol. xlvi, p. 194), the other by Mr. Doran and Dr. Williamson (*Ibid.*, p. 274), in which necrobiotic fibroids had been removed from women recently delivered. Doteris and Chartier, at the meeting of the Anatomical Society of Paris, in April last, showed a fibroid uterus containing a fœtus 7·5 cm. in length. There were three fibroids in the uterine wall, and on section all of them revealed a hard, pearly peripheral zone, and a very vascular, pink, semi-fluctuating—*i. e.* necrobiotic—central portion. A very good illustration of a similar specimen is to be found in Mr. Bland-Sutton's 'Essays on Hysterectomy,' p. 79.

The frequent association of this degenerative process with pregnancy has already been pointed out by Mr. Bland-Sutton and by Dr. Fairbairn, the latter asserting that "pregnancy, quite apart from the accidents of labour and the puerperium, has some influence in the causation of this necrotic process." Dr. Fairbairn's figures show that 40 per cent of necrobiotic fibroids are associated with pregnancy, and Mr. Bland-Sutton considers this association to exist in one half the cases.

I have now examined fifteen necrobiotic fibroids, and have investigated their relationship to pregnancy. Two only have complicated pregnancy. The tumour I show to-night is one of them. The other is recorded and figured by Mr. Bland-Sutton in his 'Essays on Hysterectomy,' pp. 88–92. A large cervical fibroid, "soft, and in colour like wet wash-leather," had caused dystocia, and the uterus and its neck, with the tumours, fœtus, placenta, ovaries, and tubes were removed intact. An interstitial fibroid undergoing red degeneration occupied the anterior wall of the uterus near the fundus. None have followed recent delivery. Six of the remaining thirteen patients furnishing these tumours had never been

pregnant. Of these three were single and three were married. The remaining seven had together borne twenty-one children, and nine miscarriages—to which number one patient, aged 43, had contributed eleven children and two miscarriages. The intervals which had elapsed since the last pregnancy in each of these seven cases varied from fifteen months to sixteen years, with an average of six years.

These figures, I consider, indicate that pregnancy plays a much smaller *rôle* in the production of this particular degeneration of fibroids than most authorities would lead us to believe.

Mr. Alban Doran remarked that pain was a well-recognised symptom indicating necrotic changes in a fibro-myoma of the uterus. He referred to a recent case under his observation where the uterus reached to a little above the pubes and had felt painful for about eight months, but there had been no hæmorrhages or discharge of any kind. Necrotic fibroid was therefore diagnosed, as in sarcoma of the uterus, which is also a painful form of tumour, discharge is an early symptom.

TUBERCULAR UTERUS.

Shown by Dr. Addinsell.

Dr. Addinsell showed a uterus the seat of tubercular disease and microscopical sections. The woman was a multipara, aged 53. She came to him complaining of procidentia and a hæmorrhagic discharge. Seventeen years ago the right kidney had been removed. Nine years ago she had a painful swelling on the left humerus. This was opened, and a sinus remained for two years. Histological examination showed tubercles extending from the cervix to the fundus.

FIBROID AND CANCER IN THE SAME UTERUS.

Shown by Dr. Handfield-Jones.

Dr. Handfield-Jones showed a specimen of a uterus which was considerably enlarged by a fibroid in the fundus, and in which the endometrium had undergone cancerous degeneration in almost the whole of its extent. The patient was a nulliparous woman, aged 55, in whom the menopause had occurred two or three years previously. The existence of a fibroid reaching up half-way to the umbilicus had been recognised for many years, but it was only during the last twelve months that pain and hæmorrhage had caused the patient to think that some change must have occurred in the tumour. Panhysterectomy was performed, and a satisfactory convalescence was made. The examination of the malignant disease showed that it presented all the characters of an ordinary columnar-celled carcinoma. The growth had spread close to the capsule of the fibroid, but had not invaded that tumour.

A CASE OF CARCINO-SARCOMA UTERI.

(With Plates XII and XIII.)

By Herbert R. Spencer, M.D., B.S., F.R.C.P.,
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(Received September 15th, 1905.)

(*Abstract.*)

The name *carcino-sarcoma* has been given to cases in which cancer and sarcoma co-exist side by side in the same uterus, *sarcoma carcinomatodes* to cases in which a malignant growth is partly cancerous and partly sarcomatous in structure.

A case of carcino-sarcoma is described. It occurred in the uterus of a sterile married woman, aged 44. Vaginal hysterectomy was performed; recurrence took place within two months after the operation.

In the case described the two growths occupy the body of the uterus, and differ markedly in appearance to the naked eye. Under the microscope the cancer is a typical glandular carcinoma; the sarcoma is of the small round-celled variety.

Abstracts are given of a few similar cases which have been published. The published details are too meagre to enable one to give a complete clinical picture of the disease, which appears to resemble simple cancer of the body in usually affecting sterile patients after the menopause. The sarcoma usually arises in the endometrium, and is lobulated, often polypoid, and, by comparison with cancerous growths, smooth upon the surface.

The writer has met with the co-existence of sarcoma and cancer once out of about ten cases of sarcoma of the uterus, and believes, with Gusserow and Opitz, that a careful examination of all cases of sarcoma will prove that the association is less rare than would appear from the number of published cases.

THE subject of this paper is one of those cases, of which but few have been published, in which a carcinomatous and a sarcomatous growth exist side by side in the same uterus. To these cases the name "carcino-sarcoma" has been conveniently applied.

I. M—, aged 44, married but never pregnant, was admitted to University College Hospital under the care of Dr. Blacker on April 11th, 1904, complaining of swelling in the lower part of the abdomen, discharge, pain, and bleeding. She had been told by a private doctor that she had a tumour, and had attended as an out-patient at a hospital for seven months, but the hospital doctor did not think there was a tumour.

Menstruation began at fourteen or fifteen, and was always regular every twenty-eight days, lasting five days, and needing twelve diapers. For four or five years past she had been unwell every three weeks and had used thirty diapers each time, and for the last two months she had had continuous hæmorrhage and discharge.

Family history.—The father was alive, aged 77, and in good health. The mother died of jaundice at sixty-six. The patient had six brothers and eight sisters. All are well, except two brothers who are dead (one from dropsy). There was no history of consumption.

On examination, nothing abnormal was detected by the abdomen. The uterus was retroverted and retroflexed; both ovaries were prolapsed. The uterus was said to be not enlarged—there is no note that the sound was passed. The temperature and pulse were both slightly raised during her stay in hospital, the temperature to about 99° and the pulse to between 80 and 90. The fundus of the uterus was noted as being very hard and was adherent.

After a few days' rest and the application of tampons the uterus was, on April 19th, 1904, dilated with steel dilators and curetted, and the case was diagnosed as endometritis. The patient left the hospital on April 28th.

On September 22nd, 1904, she was re-admitted, with the history that since the beginning of June she had only had

a week's interval between the periods, which lasted for three weeks, and she lost only a little more than usual, but during the last of the three weeks she had had several floodings, passing large clots, and using ten diapers a day.

For three weeks she had had severe attacks of pain in the lower abdomen, which sometimes ceased completely and then returned, being especially severe before she passed a clot. She had suffered much from sickness during the last three weeks, sometimes vomiting two or three times a day.

The tenderness and pain and rigidity of the abdomen interfered somewhat with physical examination.

On resuming charge of the ward, on October 4th, I found the cervix high up behind the pubes, the uterus considerably enlarged and hard, apparently containing a fibroid, and fixed by adhesions posteriorly.

Two days later I found that this "fibroid" was apparently of the size of a small orange. The cavity of the uterus curved backwards over the tumour for $3\frac{1}{2}$ inches. The lining of the cavity felt rough to the sound. I regarded the case as one of endometritis, or cancer, complicating a submucous fibroid, and on October 7th introduced a tent and next day completed the dilatation with Hegar's dilators, till the finger could be introduced. Finding soft, breaking-down tissue on the finger, I diagnosed cancer and removed the uterus *per vaginam* with the galvano-cautery. Owing to the adhesions and the friable condition of the uterus, the volsella tore out, so the uterus had to be hemisected before it could be removed, ligatures and the cautery being applied to stop hæmorrhage. Two pairs of forceps were also left on the broad ligaments, which were unusually vascular. The vagina was also plugged with iodoform gauze, which was removed seven days later.

The patient recovered and left the hospital on November 1st. On December 10th she began to complain of pain. There was a hole at the top of the vagina with infiltration (possibly inflammatory) around it. There was also a nodule as big as a filbert on the right side,

DESCRIPTION OF PLATE XII,

Illustrating Dr. Herbert Spencer's case of Carcino-Sarcoma Uteri.

The cervix is healthy except at the internal os on the left, where the cancer extends slightly into it. The shaggy growth occupying the greater part of the body of the uterus is the cancerous growth (see Plate XIII, fig. 2): in the fresh state it was of a pinkish colour. The smooth (in the fresh state white) lobulated growth in the upper and right part of the drawing is the sarcomatous growth (see Plate XIII, fig. 1). The straight white line passes through both growths. The sarcomatous growth overlaps the cancerous growth, but a section taken at this white line shows that the two growths are here separated by a narrow fibro-muscular band (see p. 352).

Illustrating Dr. HERBERT SPENCER'S case of Carcino-Sarcoma Uteri.
(Two-thirds natural size.)

Bale and Danielsson, Ltd.

DESCRIPTION OF PLATE XIII,

Illustrating Dr. Herbert Spencer's case of Carcino-Sarcoma Uteri.

Fig. 1.—A section from the sarcomatous growth, showing a small, round-celled growth permeated with fine capillaries. A few isolated large cells are seen.

Fig. 2.—A section from the cancerous growth, showing large epithelial cells with an alveolar arrangement, and extensive fibro-muscular stroma.

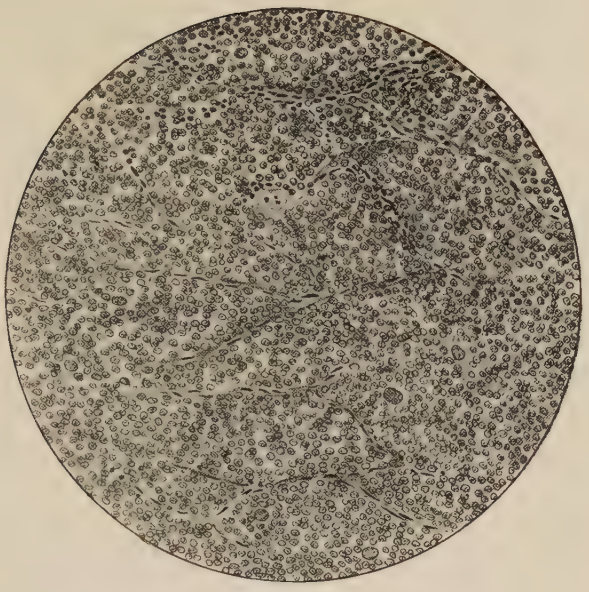

Fig. 1.

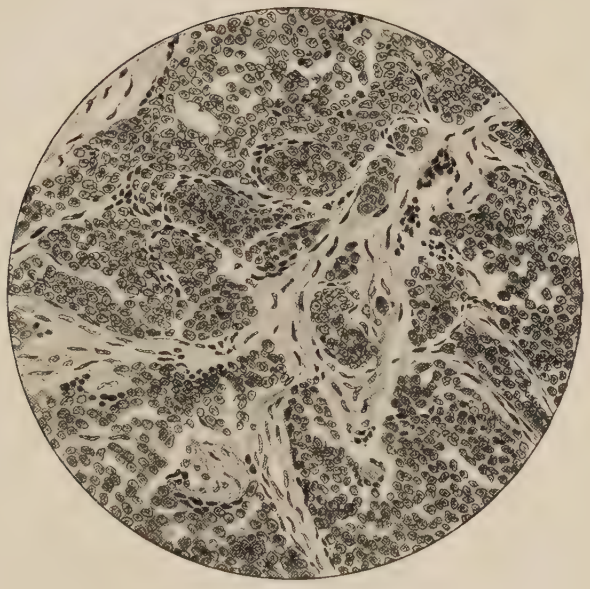

Fig. 2.

Illustrating Dr. HERBERT SPENCER's case of Carcino-Sarcoma Uteri.

Bale and Danielsson, Ltd.

above the vagina, which felt hard and might be a recurrence. The patient was examined by me a few weeks later, when it was clear that she had recurrence, which was rapidly growing. I have been unable to trace her since that time.

The main interest of the case centres in the specimen (see Plates xii, xiii). The uterus is greatly enlarged; opened out as a result of the method of removal, it measures six inches in both directions. The cervix, somewhat enlarged, is healthy, except at one spot where the carcinomatous growth has slightly extended into it from the lower segment. The body of the organ presents two distinct growths, which occupy the whole of the cavity. The more extensive growth is of a pinkish colour, shaggy, brittle, and has deeply infiltrated the muscular wall, penetrating in some places up to (and in the lower segment apparently through) the peritoneum: this growth shows the typical appearance of glandular carcinoma (Plate xiii, fig. 2) with extensive proliferation of the epithelium, which in places forms masses of large epithelial cells. The other growth occupies one cornu of the uterus, is somewhat narrower at its base than at the surface, which is nearly three inches in diameter, is multilobular in shape, white and smooth on the surface, softer in consistence than a fibroid, but not readily breaking down: this growth under the microscope is seen to be a round-celled sarcoma (Plate xiii, fig. 1), consisting of closely-set masses of small round cells, not arranged in spaces, but filling the whole field of the microscope. The growth is permeated by numerous fine capillaries. A few large cells with large nuclei are seen. In one part of the section the sarcoma-cells are seen to invade the muscular wall.

The naked-eye and microscopic appearances of the growths are well shown in the accompanying drawings.

I now give a short account of the cases of carcino-sarcoma which have been published, the records of which I have been able to see.

Eric Opitz' case, "Zwei ungewöhnliche Uteruscarcinome nebst Bemerkungen zur Theorie der bösartigen Geschwülste," 'Zeitschr. für Geb. und Gyn.', vol. xlix, p. 169:

The patient was 57 years of age, had had two children, the last twenty-nine years ago. She had ceased menstruating for six or eight years. With the exception of attacks of cramp, with loss of consciousness, she had been healthy until the present illness.

For nine or ten weeks she had lost blood and discharge from the genitals, which caused her to feel weak. She was pale. There was a sanguineo-purulent discharge from the genitals. The vagina and portio were wide, the uterus of medium size, anteflexed and movable, the appendages free.

The uterus was curetted, and two different kinds of tissue were obtained. The first consisted of typical adenocarcinoma. Imbedded in the scanty connective tissue lay the gland tubules, with polymorphous epithelium, often in several layers, and here and there completely filling the alveoli. The second kind of tissue consisted mostly of pure connective tissue in which single glands were only found in places. The connective tissue throughout did not exhibit the structure of the uterine mucosa, but consisted of spindle elements of considerable size, with but little intercellular substance between them. Under a high power were seen long, slender spindle-cells with dark-coloured nuclei and faint or even unrecognisable protoplasm, and also numerous other cells, also spindle-shaped, but mostly shorter and with considerable protoplasm; the nucleus was oval or round, often pale and vacuolated, but sometimes deeply stained. Some of the nuclei were of huge size. A very few multinucleated cells were seen. Small round cells were scattered through the tissue. Capillaries were numerous, mostly having a thickened endothelium. The uterus was removed, and showed a pedunculated mass of the size of a walnut, mostly smooth on the surface, and growing from the left cornu; this polypoid growth showed the structure of a sarcoma. At

the fundus was a typical warty growth showing the character of a glandular carcinoma. The two growths were separated by a strip of normal smooth mucous membrane 1 cm. wide.

A detailed description is given of both growths which leaves no doubt that the polypoid growth was a spindle-celled sarcoma, the warty growth a typical glandular carcinoma.

Opitz, after alluding to Virchow's sarcoma carcinomatodes and to Gusserow's statement that cancer is often found in connection with mucous membrane sarcomata of the uterus, quotes the following cases.

Rabl-Rückhard's case, 'Beiträge z. Geb. und Gyn.,' 1872, Bd. 1; 'Virchow's Arch.,' 1892, s. 191:

The patient was 51 years of age, a secundipara, and had ceased menstruating for fourteen years. She had had hæmorrhage and discharge for four years. Two tumours of the size of a fist were spontaneously expelled from the uterus. They showed the structure of round-celled sarcoma, with a few cancerous invasions, the alveolar epithelium of which was of various shapes.

The patient died, and the uterus was found to contain a grey-red tissue, with a slightly nodular surface. The microscope showed the structure to be made up of epithelial cells, showing the character of cancer. This case was one of mixed sarcoma and carcinoma, and is called sarcoma carcinomatodes.

G. Klein's case, 'Münch. med. Wochenschr.,' 1890, p. 170:

The patient was 59 years of age, a nullipara. Menopause at 48. Loss of flesh for eight months, and pain and discharge for same period. Hæmorrhage (often profuse) for seven months. Vagina distended by a tumour as big as a fist hanging out of the widely open cervix by a broad pedicle. Surface of tumour smooth, consistence rather soft and fluctuating. The growth was ulcerated and

broke down under the finger. The tumour was partly removed in 1889, but grew again, and the patient died in February, 1890. The growth removed was a round-celled sarcoma. The glands of the uterine mucosa had undergone a change, the epithelium had proliferated, in some cases completely filling the lumen, differing in no respect from the appearance met with in glandular carcinoma. The exact attachment of the pedicle of the sarcoma is not clearly indicated; it appears to have grown from the body, as a piece of the uterine wall, including peritoneum, was inverted in removing it.

E. Niebergall's case, 'Archiv für Gyn.,' vol. l, p. 129:

The patient was 62 years old. Parents died in old age; six sisters living, healthy. She had had frequent attacks of sciatica, but otherwise no serious illnesses, but had always been weakly and anæmic.

Menstruation began at thirteen; occurred every three weeks, lasted three to eight days, and was painful. The patient had been married many years, but had never been pregnant. The menopause occurred at fifty-three. Pain and hæmorrhage and watery discharge began nine years later.

The uterus was as big as a fist; the curette removed growth which proved to be cancerous. A tumour as big as a goose's egg was spontaneously passed two days later. It had a lobulated surface, was dark brown-red in colour, of the consistence of liver. It proved to be a spindle-celled sarcoma. The uterus was removed *per vaginam,* and villous cancer of the body was found. The point of attachment of the polypus could not be determined with certainty. The uterus also contained a submucous myoma and a cervical mucous polypus.

Excellent figures illustrate the case.

The after-history of the patient is not given, but she suffered from phlebitis during convalescence.

Emanuel's case, 'Zeit. f. Geb. und Gyn.,' Bd. 34, S. 1):

The patient was 47 years of age, and had not men-

struated for a year. For two years she had had a discharge, and latterly strong pains like those of labour. The cervical canal was open, and at the internal os protruded a polypus which proved to be a round-celled sarcoma; there were no glands in it.

After removal of the uterus the surface of the polypus was seen to be smooth; the rest of the mucosa was affected with villous cancer, which was limited sharply by the internal os.

Vitrac's case, 'Gaz. hebd. des Sci. méd. de Bordeaux,' 1897, p. 356:

The record of this case I have not been able to see.

von Franqué's case.—'Zeitschr. für Geb. und Gyn.,' Bd. 12, Heft 2.

The patient was 50 years of age, a virgin; the menopause occurred four years ago. She had had irregular hæmorrhages for two years, and discharge for a year. Three months ago the discharge was offensive.

Supra-vaginal hysterectomy was performed, and some weeks later the cervix was removed.

The uterus was of the size of the organ at the fourth month of pregnancy. A broad polypoid tumour sprang from the upper part of the anterior wall; microscopic examination showed this to be a round-celled sarcoma. The lower part of the body and the upper part of the cervix were affected with adeno-carcinoma.

Gebhard's case, 'Path. Anat. der weibl. Sexualorgane,' 1899, p. 184, was a mixed growth consisting of a round-celled sarcoma, with numerous giant cells, the included glands being carcinomatous.

Montgomery's case, D. W. Montgomery, 'Occidental Medical Times,' 1893, p. 310:

Dr. H. Kreutzmann brought to Prof. Montgomery two small pieces of tissue removed by curetting from the uterus. One of the pieces from the uterine cavity appeared to be normal.

The other piece, from the cervix, at the place where the flat epithelium of the cervical portions changes into the glandular structure of the mucous membrane showed "a large thick mass of flat epithelial cells driven down into the subjacent tissue, and in one specimen there were branches given off from this mass running down still deeper, and far down into the tissue of the cervix there were alveoli filled with irregularly arranged flat epithelial cells." Dr. Montgomery came to the conclusion that he had to do with a very early but microscopically clearly recognisable case of epithelioma. A few days after the curetting a wedge-shaped piece of the cervix was cut out for microscopical examination, and there was found "some epithelial infiltration extending into the submucous tissue." Dr. Montgomery reported that the infiltration was slight, but unequivocal, and it must therefore be regarded as epithelioma at an early stage of its development. The uterus was removed by Dr. Cushing and the anterior wall was found to bulge forward. On cutting the organ open antero-posteriorly a dark-red round intramural tumour was exposed in the substance of the anterior wall." It was so imprisoned by the tissues composing the muscular wall and so resilient that, when cut in two by the section which exposed it, it sprang forward like a compressed sponge, forming two projecting masses, over an inch in diameter. It was found to be a round-celled sarcoma, positively riddled with blood-vessels.

No clinical details are given, except that the patient was free from recurrence forty-two months after operation.

No drawings are given illustrating the microscopic appearance of the cancer or of the sarcoma.

Amann, 'Ueber Neubildungen der Cervicalportion des Uterus,' 1892 :

Polypus of cervix. Sarcomatous degeneration of an adenoma of the mucous membrane, with subsequent cancerous degeneration of the epithelium.

Iwanoff's case, 'Monats. f. Geb. u. Gyn.,' vii, p. 295 : The patient was 38 years of age. A nodular cauliflower-like growth had grown through a hole in the posterior vaginal vault into the vagina. Examination showed it to be an adenocarcinoma. Five years later the patient died, and it was found that an adenomyoma arising from the posterior uterine wall in its upper part had become sarcomatous and its lower part cancerous.

von Kahlden, 'Ziegler's Beiträge,' Bd. 12, doubts the simultaneous occurrence of cancer and sarcoma in the same uterus, though he does not absolutely deny it, since, he says, the sarcoma grows slowly and therefore it is *possible* for cancer to develop in a uterus affected with sarcoma.

Gessner, 'Veit's Handbuch der Gynäkologie,' iii, 22, p. 867, makes a distinction between cases of sarcoma and cancer which grow into each other (the occurrence of this form he denies) and cases in which the two growths exist side by side (an occurrence which he thinks is proved by Klein's, Niebergall's, Emanuel's, Amann's, and Iwanoff's cases).

Opitz points out that Gessner's position is not logical, and says that if Gessner had known of Gebhardt's case perhaps he would have altered his opinion.

Opitz also calls attention to the fact that of sixteen cases of sarcoma published by von Franqué, in three cancer was also present, and thinks that probably the cases are only apparently rare, by reason of insufficient examination of the specimens, an opinion which I myself share, in that the case now published has been met with as a result of the examination of ten cases of sarcoma of the uterus which have been under my care.

Opitz gives a brief description of the clinical features of the cases of carcino-sarcoma, and gives an interesting disquisition on the views held as to local, general, and developmental origin of malignant growths.

Oskar Nebesky's case, 'Archiv für Gynäk.,' 1904, Bd. 73, p. 653:

The patient was 57 years of age, married. Before the present illness always healthy. She had had four children, the last eighteen years ago. The puerperium was always normal. Menstruation began at seventeen, was regular but somewhat profuse, without special pain. Menstruation ceased at fifty-five. Atypical hæmorrhages occurred at fifty-seven, three months ago; between the hæmorrhages there was a sanguineo-serous, not offensive, discharge. For two months the patient had had sacral pains which spread to the thighs. For six or seven years she had noticed a hard knot in the left breast which increased in size, but caused no pain.

The uterus was somewhat enlarged, of soft consistence. It was removed by the abdomen together with the appendages. Tubes, ovaries, parametrium, and glands appeared normal. The left mamma was also amputated; this was found to be affected with carcinoma, which had probably arisen in an adeno-fibroma.

The cervix was practically normal.

The body was occupied with a villous cancer which infiltrated the muscular wall. There was also a polypoid growth of the size of a prune, which was attached to the posterior wall of the uterine cavity by a pedicle as thick as a pencil. This tumour was white at its upper part, pale pink below, and deeply lobulated. The lower part was infiltrated with blood. The polypoid growth proved to be a spindle-celled sarcoma. Multinucleated cells and giant cells were also found, especially at its lower parts. Muscle-cells were not found. The tumour was rich in vessels. The sarcoma was sharply defined towards the muscular wall, but the mucous membrane of the uterus had become sarcomatous for some distance around the insertion of the pedicle. The growth had originated in the mucous membrane and not in a fibroid; only at one spot in the lower part was there an appearance as if a fibroid had existed, and had undergone secondary sarco-

matous change. The mucous membrane of the body was cancerous (papillary adeno-carcinoma). The epithelium over the sarcoma was of the squamous variety, many-layered, and sent processes downwards and into the sarcoma.

He quotes Opitz, and in addition to Opitz's cases mentions *Fränkel's case* ('Sitzungsbericht der Münchener Gyn. Ges.', 1901, p. 47), in which carcinomatous glands were imbedded in a sarcomatous stroma.

He quotes also Niebergall, Amann (who traces the origin of the sarcoma to the capillaries), von Franqué, Rosenstein ('Virchow's Archiv,' Bd. 92, p. 191), Iwanoff.

In connection with the sqamous epithelium covering the sarcoma in his case he refers to Amann, Gebhard, and Hitschmann on "metaplasia."

Nebesky examined nine cases of sarcoma of the uterus, and in one of these, a large round-celled sarcoma from a nullipara, aged 37, he found the glands of the corpus uteri nearly all destroyed, but in one part some glands remained, and these showed commencing cancerous change.

A good illustration accompanies the paper.

Sehrt's case, Ernst Sehrt, 'Beiträge zur Geburtshilfe und Gynäkologie,' Bd. x, Heft 1, p. 43:

Mr. Doran kindly called my attention to this case, which has appeared since my paper was written in the last issue of Hegar's 'Beiträge.'

The patient was 53 years of age. The uterus was removed by laparotomy by Professor Krönig, but no further clinical history is given.

The uterus was 11 cm. long. It contained a large growth of the size of a man's fist, in great part necrotic. It occupied nearly the whole of the cavity of the body, but on the left anterior wall, in an area measuring 4 cm. long by 2 cm. broad above the internal os, the endometrium was intact but reddened. In this area six or seven slight elevations were found; they were rounded, of the size of

a pin's head, up to 5–9 mm. long by 1·5 mm. broad, were only raised ½ mm. above the surface, and penetrated into the muscular wall for 1½ to 3 mm. They were not connected with each other.

The large growth was a sarcoma, with polymorphous and giant cells. The small isolated growths were carcinomatous, and in the author's opinion "secondary" to the sarcoma.

Judging by the excellent drawings which illustrate the paper, there is no doubt as to the diagnosis, which, moreover, was confirmed by Ziegler and Sellheim.

Remarks.—For the present I think it is important to keep distinct cases such as the one now published, in which sarcoma and carcinoma exist side by side (to which the name "carcino-sarcoma" may be given), and cases of mixed growth, to which the term "sarcoma carcinomatodes" has been applied by Virchow and others.

It is unnecessary to remind this Society of the difficulty which sometimes exists in distinguishing sarcoma from carcinoma. Especially is there a danger of mistaking a fibroid for a spindle-celled sarcoma. But with a round-celled sarcoma, which is the variety present in most of the cases, the risk of mistake is very slight; and I think there can be no doubt that in the case I publish to-night, and in most of the cases included in this paper, there is undeniable evidence of the existence of these two varieties of malignant disease side by side in the same uterus. It is obvious that such an occurrence is of great importance from the pathogenetic point of view, though its true bearings may not yet be visible.

The cases are too few and the clinical details too meagre to enable one to give a clinical picture of the disease, but it seems to occur, like ordinary cancer of the body, usually after the menopause, in women who are either absolutely sterile or who have had long periods of sterility. The sarcoma usually arises in the endometrium, tends to assume a lobulated and polypoid form, sometimes having quite a narrow pedicle.

The symptoms do not differ materially from those met with in carcinoma of the body, and the treatment is similar, though, in the absence of a sufficient number of observations, and forming a judgment from my personal experience of simple sarcoma of the uterus, I should anticipate that recurrence will almost always occur.

Mr. Handley said that cases of the association of sarcoma with carcinoma might seem at first sight to support the infective theory of malignant growths, and to suggest simultaneous invasion by a parasite of both the epithelial and the connective tissues. But such a view failed to explain the association of endometrial or tubal cancer, not only with sarcoma, but with uterine fibromyoma. It seemed more probable that any lump in the uterine wall, whether simple or sarcomatous in character, might occasionally so irritate the endometrium as to cause a cancer, in much the same way as a carious tooth may cause epithelioma of the tongue. He would like to ask whether, in Dr. Spencer's opinion, the sarcoma in Dr. Spencer's case originated from a fibro-myoma?

Dr. Herbert Spencer, in reply, said that although the compound word "carcino-sarcoma" was an ugly one, it was not of his coining, and it served well as a label, and for indexing purposes was preferable to the full description of the condition as "carcinoma and sarcoma co-existent in the uterus." He submitted that the naked-eye appearances and microscopic sections of the two growths were widely different. The cancer was a typical glandular carcinoma; the sarcoma showed under the microscope a surface of round cells much smaller than the cells of the cancer, filling the whole field of a low power of the microscope, without any bands of fibrous stroma, and permeated with capillaries. Though the section was not a very fine one, he thought the growth must be termed "a small round-celled sarcoma," and in this opinion was supported by Mr. Lawrence, the Curator of University College Museum. Not wishing to alter the naked-eye appearance of what he thought the Society would consider an interesting specimen, he had not cut through the uterus, but this would now be done, and fresh sections would be prepared and submitted to the Pathology Committee. In reply to Mr. Handley, he said that he thought it very probable that the sarcoma had begun in a fibroid, but this could not be definitely stated until other sections had been cut, and perhaps not then.

(The specimen was referred to the Pathology Committee. See p. 352.)

NOVEMBER 1st, 1905.

A. C. Butler-Smythe, F.R.C.S.Ed., Vice-President, in the Chair.

Present—36 Fellows and 2 visitors.

Robert James Blackham, Capt. R.A.M.C., D.P.H.Lond., was elected a Fellow.

Report of the Pathology Committee on Dr. Herbert R. Spencer's Specimen (with Microscopic Sections) of Carcino-sarcoma Uteri (*see p.* 338).

We have examined this specimen and microscopic sections thereof exhibited before the Society, and in addition a section prepared from the junction of the two growths (*cf.* Plate xii). This section shows on one side undoubted spheroidal-celled carcinoma with a definite alveolar arrangement and no round-celled infiltration. On the opposite side the growth is composed of cells which are for the most part smaller and have no alveolar stroma except such as is formed by vessels. This tissue is extensively infiltrated with small round cells. Between these two types of growth is a fibro-muscular band estimated at one thirty-second of an inch in breadth.

Three of us (viz. J. H. Targett, C. Lockyer, and Corrie Keep) consider that both growths are spheroidal-celled carcinoma.

The remaining four of us consider that the evidence in favour of this view is not conclusive, and that the growth composed of small cells may be sarcoma.

W. S. Handley.
Cuthbert Lockyer.
Herbert R. Spencer.
Herbert Williamson.
Corrie Keep.
John S. Fairbairn.
J. H. Targett, *Chairman.*

A CASE OF ECLAMPSIA, WITH TWO SPECIAL DETAILS OF TREATMENT.

By C. Nepean Longridge, M.D.Vict., F.R.C.S.Eng.,
Resident Medical Officer at Queen Charlotte's Hospital.

A fair woman, aged 25 and somewhat nervous about herself, was seen in the out-patient department of Queen Charlotte's Hospital in the fourth month of her second pregnancy. She had had eclampsia during her first labour, the infant being stillborn. The urine was free from albumen, there was no œdema and no symptom of the toxæmia of pregnancy. Vomiting had been slight during the second month. The blood-pressure in the right brachial artery, taken by the Riva Rocci apparatus, was 140 mm. of Hg. She was seen at intervals during the pregnancy, and the urine on all occasions was found to be free from albumen and the general condition good. For the last month she was sent to a home where she could be under supervision. On August 31st she complained of headache, slight vomiting, and diarrhœa (fifteen actions). At 10.30 p.m. she was brought to the hospital; immediately on admission she had a fit and became unconscious. Two fits followed in rapid succession, the dura-

tion of each being about three minutes. The size of the uterus corresponded to that of full-time pregnancy, the fœtal heart was heard, and the child was lying in the L.O.A. position, with the head well engaged. The cervix was short and admitted two fingers, the membranes being unruptured. The blood-pressure was 160 mm. of Hg., the urine became nearly solid on boiling, and there was some œdema of the feet and legs.

Five grains of calomel and $\frac{1}{4}$ gr. of morphia were given. The calomel was vomited at once, and replaced in about half an hour by an ounce of oil. She had four more fits between one and three o'clock, when another $\frac{1}{4}$ gr. of morphia was given. There was marked cyanosis during the fits, and deep unconsciousness between them. At 6.30 a.m. the os was found to be fully dilated, the membranes were therefore ruptured, forceps applied, and the child delivered. No attempt was made to check bleeding, which amounted to twelve ounces. She had a fit during the birth of the placenta. From 7 a.m. to 10.30 a.m. she had six fits. A third injection of morphia was given at 9.30 a.m. From 10.30 a.m. to 11.30 a.m. four fits occurred of a greater severity and duration than any which had hitherto taken place. As the patient's condition appeared to be getting rapidly worse, the right median basilic vein was opened and about ten ounces of blood removed and thirty-two ounces of saline run into the vein. The stomach was washed out with warm water, half a pint of saline, five ounces of milk, and an ounce of oil being left in. In the next two hours three fits occurred. The bowels being not yet open, an enema containing an ounce of mag. sulph. and half an ounce of glycerine was given, together with 2 ♏ of croton oil by the mouth. There were two fits in the next hour. She was then given occasional whiffs of chloroform, being kept warmly wrapped up, with hot bottles and blankets. At 3 p.m. profuse perspiration began, and continued, and some water was passed. Two more slight fits were noticed about two hours after. At 6.30 p.m., as the pulse was very rapid and feeble, a fourth

injection of morphia was given, and two pints of saline, with an ounce of brandy by the bowel. The patient soon improved, and became less unconscious, and was able to swallow half a pint of albumen-water. At 10.40 p.m. the bowels acted for the first time, to the accompaniment of a slight fit, this being the twenty-fifth and the last. During the day the œdema increased rapidly, the hands and face being particularly affected. The pupils remained firmly contracted, except during the fits, when they dilated. During the night she was restless, took plenty of sweetened milk and barley-water, and passed urine. Ten watery, foul-smelling motions were passed. The temperature, which was 105° F. at the cessation of the fits, fell in the morning. There were no pulmonary complications. The patient remained unconscious from 10.30 p.m. on August 31st until about 6 a.m. on September 3rd. She suffered from a marked loss of memory, which was not completely restored six weeks after her illness. On September 4th she developed jaundice, which lasted until September 9th; there were no hæmorrhages. At the same time she had some labial herpes and itching of the head. On September 4th the œdema had practically disappeared, and the blood-pressure was reduced to 120 mm. Hg. The urine contained about one third albumen and a large quantity of casts. The albumen had disappeared by the sixth day. Subsequent progress was uneventful, and the infant did well.

The day after delivery the alkalinity of the blood was examined by Wright's method (1) and found to be equal to $\frac{N}{75}H_2SO_4$, the alkalinity of normal blood being $\frac{N}{35}H_2SO_4$. A mixture containing mag. sulph. 1 oz., citrate of soda $\frac{1}{2}$ dr., and ext. casc. liq. $\frac{1}{2}$ dr. was given every three hours. A pint of saline containing an ounce of lactose was injected into the rectum every four hours. Citrate of soda was given to increase the alkalinity of the blood. In two days alkalinity was brought up to $\frac{N}{30}H_2SO_4$. The first estimation of the alkalinity was only made twelve hours after the fits had ceased and a considerable

elimination of toxin had already taken place. In another mild case of eclampsia, where the patient had four fits, the alkalinity was found to be $\frac{N}{80}$ H_2SO_4 while the fits were occurring. A third case gave an alkalinity of $\frac{N}{60}$ H_2SO_4. So far as I have been able to ascertain no estimations of the alkalinity of the blood have hitherto been made in cases of eclampsia. This detail may be an important one, as showing that the intoxication, whatever it is, is probably an acid one, and as an indication for the exhibition of alkalies. A citrate was given, as it is absorbed readily into the blood as a carbonate and so increases the alkalinity. Jardine (2), a strong advocate of transfusion in these cases, recommends the addition of one drachm of sodium acetate to the pint of normal saline for transfusion, but informs me that he has given it with a view of causing diuresis, and not to increase the alkalinity of the blood.

A second detail of treatment rests on a highly theoretical basis. The patient was given considerable quantities of sugar by the mouth and rectum. None appeared in the urine. The patient became markedly jaundiced, showing that the liver had gone through a period of stress, and one imagines that the bile canaliculi became blocked with the *débris* of the storm in much the same way that the tubules of the kidney became choked with casts. The work of Schiff, Bouchard, and Roger (3) has proved that the liver possesses an important antitoxic function. It seems that this antitoxic function can only be exercised in the presence of glycogen, and further, that the power of the liver to decrease the toxicity of poisons depends directly on the amount of glycogen contained in its cells. It was thought in this case that in consequence of the high temperature and the severe muscular exertion which the patient had undergone, the glycogenic content of the liver was practically exhausted, and sugar was given with a view of increasing it, and so increasing the antitoxic power of the liver. Three years ago I advocated the use of glucose in feeding typhoid patients on these

grounds (4), and my small experience as a house physician led me to regard the results with favour.

I feel convinced that transfusion saved the life of this patient, and that the case illustrates the arguments urged by Jardine in favour of this line of treatment. It is, of course, impossible to say how far the two details of the after-treatment which I have described contributed to the rapid recovery of the patient, but it can be claimed for them that they rest upon a thoroughly scientific basis.

I am indebted to Dr. Griffith for permission to publish this case.

References.

(1) Lancet, September 18th, 1897, p. 719.
(2) Journ. of Obstet. and Gynæcology, July, 1905, p. 14.
(3) Thèse de Paris, 1887.
(4) Brit. Med. Journ., August 30th, 1902, p. 616.

Dr. Handfield-Jones called attention to the fact that the patient had had puerperal eclampsia in her previous confinement. He thought that this point was of much importance in discussing the etiology of the disease. He quoted two cases in which the patients had had convulsive seizures in several consecutive confinements, and in whom the kidney function had been most regularly performed in the intervals between the pregnancies. These cases of repeated puerperal eclampsia would seem to indicate that renal inadequacy played an important part sometimes in the production of the disease. He was much interested in Dr. Longridge's observations regarding transfusion, but he had always considered that the benefit of transfusion depended on a dilution of the unhealthy blood rather than on a modification of its alkalinity.

Dr. Eden congratulated Dr. Longridge upon the successful issue of his well observed and carefully treated case. The point brought out in this case with regard to the greatly diminished alkalinity of the blood was quite a new one so far as his knowledge went, and it appeared to him to be of great practical importance, for if it should prove to be a constant occurrence in eclampsia then a definite advance was assured in our knowledge of the nature of the toxæmia which was now almost universally believed to be the cause of eclampsia. Up to the present we were in the dark about this matter, but it might at any rate prove to be the starting-point of further discovery if it were

shown to be an acid toxæmia. The treatment of eclampsia by saline transfusion would also be influenced in an important direction by Dr. Longridge's observation. He had always felt some difficulty in explaining the immediate benefit which followed saline transfusion. It was at first attributed to a diuretic action; but careful observation of the recorded cases showed that diuresis was not produced, as a rule, until after the lapse of twenty-four hours, while the improvement in the condition of the patient was prompt, if not immediate. If, however, an alkaline saline solution were used, the immediate effect would be to raise the diminished alkalinity of the blood, and to this action the immediate benefit might very well be referred. It was clear that the solution used ought to be definitely alkaline in reaction.

DEGENERATING FIBROMYOMA AND SARCOMA OF UTERUS.

Shown by Dr. Walter Tate.

The special interest of this specimen is to determine whether the sarcoma was due to malignant change in a pre-existing fibroid or whether it was a primary growth.

K. M—, aged 35, single. Patient enjoyed good health, and was regular up till April, 1905. From this date the periods have occurred every fortnight, and have been excessive. Patient began to lose flesh, and has suffered from pain at night. There has been rapid and very marked increase in the size of the abdomen. Patient on admission was very emaciated and had a cachectic appearance. The abdomen was much distended, and a tumour could be felt reaching half-way between the umbilicus and xiphisternum. There were two or three small nodules projecting from the surface of the tumour. The tumour was dull on percussion, and capable of very slight mobility. The cervix was high up and directed to the left. The right and anterior fornix was bulged down by a nodular mass continuous with the right portion of the abdominal tumour. There is marked fixation of the pelvic portion of the tumour.

Laparotomy was performed on October 5th, 1905. On

the right side the tumour had burrowed into the right broad ligament, and the utero-vesical fold of peritoneum was much raised owing to the tumour having grown down between the bladder and cervix. The portion of growth which was shelled out in this situation was smooth and encapsuled, but was quite soft and friable. The whole uterus was removed.

After removal of the tumour the lumbar glands were found to be much enlarged, and there were a few superficial growths in the peritoneum in the region of the sigmoid flexure.

The tumour removed weighed 4½ pounds. The tumour was irregular in shape, and presented two well-marked bosses at the upper part and one or two more scattered irregularly over the surface. There was a large soft mass growing from the lower and anterior aspect of the tumour, which was almost separate from it. This was the part of the tumour which had burrowed below the utero-vesical fold of peritoneum. On incising the posterior wall of uterus, the growth was seen to extend from the sub-peritoneal protuberances through the muscular wall into the uterine cavity, which was greatly expanded and filled with a sloughing polypoid mass, having the appearance of a breaking-down growth. Section of the tumour had a waxy, lardaceous appearance at the fundus, but lower down the growth was more vascular. In the wall of the uterus was a separate nodule the size of a large walnut, which was firm and white externally, but more diffluent in the centre. Low down in anterior wall, and close to the friable portion of the tumour, was another small interstitial fibroid, quite separate from the rest of the growth. Microscopic examination showed the principal mass of the tumour to consist of fibromyoma undergoing necrosis. The smaller, friable, portion proved to be a spindle-celled sarcoma.

(The specimen was referred to the Pathology Committee. See pp. 407, 408.).

FIBROMYOMA OF UTERUS, ASSOCIATED WITH LARGE CAVITY CONTAINING RETAINED MENSES COMMUNICATING WITH UTERINE CANAL.

Shown by Dr. Walter Tate.

The patient from whom this specimen was removed was a married woman, aged 49, with no children. A fibroid tumour had first been discovered twelve years ago, but only during the last two and a half years had the symptoms been grave. During this time there had been increasing menorrhagia, and recently hæmorrhage had been very profuse and continuous, lasting for six weeks. The patient was markedly anæmic. On examination there was a large, firm tumour reaching to the level of the umbilicus, and *per vaginam* a firm lobe of the tumour could be felt filling the sacral hollow and depressing Douglas's pouch.

Abdominal section was performed on October 7th, 1905. The removal of the tumour was rendered difficult owing to extensive burrowing under the peritoneum of the right broad ligament and beneath the utero-vesical fold of peritoneum. There were also very firm adhesions in the pelvis. An interesting feature noticed during the operation was that, in separating the tumour at the level of the internal os, a large amount of thick, tarry fluid, having the appearance of retained menses, escaped. After the removal of the tumour about two pints of this material escaped through the cut uterine canal.

The tumour is seen to consist of two parts, separated by a marked constriction. The larger portion is as large as a cocoanut, and formed the abdominal swelling. It consists of a large cavity, which had contained the retained menstrual fluid, surrounded by the thick wall of fibromyomatous tissue varying in thickness from a half to

one and a half inch. The interior of this cavity presents quite a smooth surface continuous with the cavity of the uterus. The smaller portion of the tumour, which is as large as an orange, consists of the body of the uterus with a fibromyoma in the anterior wall. The two Fallopian tubes can be distinguished passing out on either side from the upper end of the cavity of the uterus, and a bristle is readily passed along them. The cavity of the uterus communicates freely with the cavity in the larger portion of the tumour, and each is continuous with the cervical canal.

The interesting problem to solve is how the cavity containing retained menses was brought about. The most probable explanation seems to be that it is a slow, gradual expansion of the anterior wall of the uterus at the junction of the body and cervix. It will be noticed that the uterus itself is markedly retroflexed, with a fibroid in the anterior wall, and it is conceivable that in course of years the portion of uterus at the junction mentioned may have become slowly converted into a saccular dilatation. It is not necessary to assume any actual obstruction to the outflow of menstrual fluid, for cases of pyometra and hæmatometra frequently occur in which the cervical canal is quite patent.

Dr. Handfield-Jones congratulated Dr. Tate on the very interesting specimen which he had brought before the Society. The explanations of the phenomena were certainly difficult, but it would seem quite possible that the posterior fibroid had bulged into the uterine cavity, dividing it into two sections, and acting as an impediment to the outflow of the menstrual fluid. He thought it very important that the case should be referred to the Pathology Committee for further examination and report.

Mr. Alban Doran observed that in cases of a single fibromyoma developed in the uterus the tumour often assumed some fantastic shape, so that, projecting from the unenlarged uterus, it made that organ appear to be the subject of congenital malformation. Such was the case in the remarkable specimen shown by Dr. Lockyer and himself before the Society in 1901.

(The specimen was referred to the Pathology Committee. See p. 407.)

MYXOMA OF THE LABIUM MAJUS.

Shown by Dr. Handfield-Jones.

Dr. Handfield-Jones showed a specimen of a polypoid growth which he had removed from the left labium majus of a young woman aged 28. The growth was of about the size of a large fœtal head at full term, and had increased gradually for five years. Examination of the structure showed it to be a pure myxoma. The patient had put up with the inconvenience of the growth until ulceration of the surface, due to friction, had caused necrotic changes and rendered her condition almost unbearable.

SUBTOTAL HYSTERECTOMY: AFTER-HISTORIES OF SIXTY CASES.

By Alban Doran, F.R.C.S.

(Received September 25th, 1905.)

(*Abstract.*)

These sixty after-histories of cases where the author performed subtotal hysterectomy for fibroid disease on women who had not reached the menopause are here tabulated and analysed in order to determine how far that operation is liable to be followed by disagreeable consequences. In every instance a reliable after-history, extending to at least two years after operation, could be obtained, cases with short or otherwise imperfect histories being rejected. As regards the removal of the tumour the results of subtotal hysterectomy appear uniformly beneficial, but certain discomforts, more or less associated with artificial menopause, sometimes follow the operation, and these records may be of service in indicating how far these discomforts may be avoided.

The preservation of one or both ovaries is never justifiable when, as is not rare, cystic or inflammatory disease is present, but when healthy at least one ovary should be saved. Abel and Zweifel maintain that it is essential to preserve a portion of the endometrium as well, in other words, to amputate the uterus above the level of the os internum, in order to ensure the patient against the discomforts of an abrupt menopause.

In twenty-eight cases both ovaries were removed. In three the menopause was neither immediate nor complete, and in at least two the blood must have proceeded from endometrium. In six the menopause was complete without symptoms; all the

six patients were over thirty-eight years of age. In nine the menopause was distinct, complete, and mild, whilst in ten it was complete with severe symptoms. In the worst case the patient was a woman aged thirty-eight, of doubtful sanity and intemperate habits. For three years her health remained good, but she was troubled with flushings; then she resumed her bad habits, and, at the end of six months, died after drinking carbolic acid. In another case where the patient had been insane before the operation the mental symptoms recurred a few months later, but soon subsided.

In twenty-six cases one ovary was saved. In eight the catamenia were regular for a longer or shorter period after operation. In five the catamenia appeared after operation, but irregularly. In thirteen the menopause was complete and immediate after operation, without symptoms in four patients, whilst in none of the remaining nine were the symptoms severe, as in the similar sub-series, where both ovaries were sacrificed.

In six cases both ovaries were saved. In three the catamenia continued regular after operation, in two they reappeared but were soon suppressed, and in one the menopause was complete and immediate after operation, without symptoms.

The Abel-Zweifel theory seems to receive support from these statistics. Thus, in seven out of the eight cases where one ovary was saved and the catamenia continued regular, and in two out of the three where both ovaries were saved and the catamenia continued regular, the author had purposely amputated the fibroid uterus above the level of the os internum. In many cases where some endometrium was spared in this manner the period became irregular or never reappeared, but, in these instances, the portion left behind might have been diseased, or damaged during the operation, or destroyed in the course of cicatrisation of the stump of the uterus. Flaps of uterine wall without endometrium are, according to these statistics, insufficient as guarantees against severe menopause symptoms.

The author considers that a similar analysis of sixty cases of panhysterectomy for fibroid where, of necessity, no trace of endometrium can be preserved would be instructive.

No.	Date of operation.	Age of patient, &c.	Character of fibroid.	Treatment of ovaries.	Date of last report.	Condition according to last report.
1	March 23, 1897	40, S.	Bulky, pressing down in pelvis; menorrhagia, attacks of syncope	Both removed (enlarged, hæmatoma in left ovary)	February, 1905	Good general health. No period since operation, no flushings, no attacks of syncope.
2	April 10, 1897	40, M.	6 lb., rapid growth; menorrhagia	Both removed	July, 1904	Good general health. No period since operation; flushings daily for about a year.
3	April 20, 1897	42, M.	Necrotic fibroid; high temperature, hæmorrhage	Both removed; incipient cystic changes	July, 1900	Good general health. Period (?) once seen 6 months after operation. Severe flushings for 12 months, then complete cessation.
4	Sept. 23, 1897	40, S.	Small tumour; severe menorrhagia	Both removed; small cystic degeneration of left ovary	November, 1904	Fair health, slightly impaired by hæmorrhoids. No period since operation; occasional flushings for about 2 years, now quite ceased.
5	Oct. 5, 1897	49, M.	8 lb. 9 oz., growing quickly; menorrhagia	Both removed	October, 1904	Good general health. No period; flushings for about 3 years after operation.
6	March 15, 1898	42, S. (sister to No. 12)	3 lb. 7½ oz., rapid growth; moderate menorrhagia	Both removed	July, 1905	Good general health; debility for a year after operation. No period since operation; never any flushings or other menopause symptoms.
7	May 31, 1898	40, M.	4 lb. 1½ oz., pressure symptoms; hæmorrhages	One saved (hydrosalpinx opposite side)	May, 1905	Good general health; became corpulent. No period since operation; occasional flushings at first when fatigued.
8	July 12, 1898	40, S.	3 lb., 15 oz., rapid growth; no menorrhagia	One saved	October, 1904	Good general health. No period since operation; no flushings.

No.	Date of operation.	Age of patient, &c.	Character of fibroid.	Treatment of ovaries.	Date of last report.	Condition according to last report.
9	Dec. 12, 1898	46, S.	2 lb. 14 oz., very bulky; myxomatous degeneration; no menorrhagia	One saved; removed ovary cirrhotic	December, 1903	Good general health. Married 2½ years after operation. No period after operation; no flushings.
10	Jan. 26, 1899	47, M.	1 lb. 10 oz.; severe menorrhagia, watery discharge between periods	Both removed; normal	June, 1904	Good general health. No period after operation; severe flushings for 2 years.
11	Feb. 9, 1899	29, S.	Small necrotic fibroid; menorrhagia; flushings between periods; irregular pulse	One saved; opposite ovary cystic	July, 1904	Good general health after debility first year. No period after operation; occasional flushings as before operation during first 4 years; pulse became regular after operation.
12	Feb. 21, 1899	40, S. (sister to No. 6)	Large fibroid, rapid growth; moderate menorrhagia	Both removed	July, 1905	Good general health. Period persisted for over 2 years irregularly, with flushings, which disappeared after cessation of period.
13	April 11, 1899	44, M.	9 lb. 13 oz. (broad ligament), rapid growth; no bleeding	Both removed	April, 1905	Good general health. No period since operation; occasional flushings, worst in third year.
14	May 25, 1899	33, S.	4 lb. 12 oz., bulky; pressure symptoms; no menorrhagia	Both removed, normal	February, 1905	Good general health for last 2 years. No period since operation; severe flushings and headache for 2 years.
15	June 1, 1899	41, M.	Fibroma involving cervix; menorrhagia (sickly patient)	One saved (pyosalpinx other side)	March, 1905	Good general health. No period since operation; no flushings, but headaches (cured by glasses relieving defective sight) and epistaxis (as occasionally before operation), with debility for 3 years; afterwards excellent health.

						appeared.
17	June 22, 1899	38, M.	Small pelvic fibroid, severe dysuria; no menorrhagia	One saved	March, 1902	Good general health. Very slight show with molimen for 1 year, then total cessation: no flushings.
18	Dec. 29, 1899	40, M.	3 lb. 4 oz., pressure symptoms; no bleeding	One saved	February, 1905	Good general health, but frequently felt weak during first 2 years. No period since operation; occasional flushings for 5 years.
19	Jan. 23, 1900	39, S.	Large fibroid involving cervix; severe menorrhagia	One saved	November, 1904	Died 4 years and 10 months after operation of fibroid phthisis and bronchiectasis, existent at time of operation. Period regular for 2 years.
20	Feb. 1, 1900	27, M.	4 lb. 1 oz., growing quickly, pressure symptoms; menorrhagia	One saved	February, 1904	Good general health. Period regular for 2 years, then disappeared for 6 months, reappeared and remained regular; no flushings.
21	May 10, 1900	24, S.	Small fibroid, 14 oz.; severe hæmorrhages	Both saved	July, 1903	Good general health, anæmia disappeared. Period quite regular; no flushings.
22	May 31, 1900	36, M.	Small fibroid, dysuria; no menorrhagia	One saved (pyosalpinx opposite side)	February, 1904	Good general health. No period since operation; frequent flushings.
23	May 31, 1900	46, S.	3½ lb., rapid growth; menorrhagia	Both removed	May, 1902	Good general health. No period since operation; flushings 1 year, then ceased entirely. Tinnitus aurium occasionally.
24	June 2, 1900	46, M.	Large fibroid, 6 lb,, rapid growth; no menorrhagia	One saved; removed ovary cystic	November, 1903	Good general health. Occasional slight show; flushings began on second year after operation, and are at times severe.

No.	Date of operation.	Age of patient, &c.	Character of fibroid.	Treatment of ovaries.	Date of last report.	Condition according to last report.
25	June 5, 1900	41, S.	Pelvic tumour, 3 lb., chiefly on cervix, pressing on rectum; no menorrhagia	Both removed, being cystic	February, 1904	Persecutory mania developed a few months after operation (patient had signs of mental disease for several years). Now in good health, with occasional delusions. No period since operation.
26	June 19, 1900	38, M.	4 lb. 12 oz., rapid growth; scanty period	Both removed; right ovary cystic, left hydrosalpinx	December, 1903	(Intemperate subject). Good health 2 years. No period since operation; flushings 3 years. Intemperate habits then increased. Death from carbolic acid poisoning 3 years 6 months after operation.
27	July 5, 1900	38, S.	2 lb. 1 oz., rapid growth; moderate menorrhagia	One saved	July, 1902	Good general health. Period scanty, irregular; no flushings; occasional headaches.
28	Oct. 11, 1900	43, S.	4 lb. 6 oz. myxomatous, rapid growth; no menorrhagia	Both removed; cystic	February, 1904	Good general health. No period since operation; occasional flushings.
29	Oct. 18, 1900	45, S.	11 lb. 1 oz., pressure symptoms; no menorrhagia	Both removed	December, 1903	Good general health. Slight mucous discharge, usually coloured, and distinctly so once in 4 weeks.
30	Oct. 23, 1900	49, S.	4 lb., severe pressure symptoms; menorrhagia	Both removed; right cystic	November, 1904	Rather weak; suffers from overwork as a school teacher. No period since operation; troublesome flushings for 2 years.
31	Nov. 1, 1900	40, M.	Fibroid obstructing pregnancy, 5th month	Both removed	November, 1903	Good general health. No period since operation; no menopause symptoms.
32	Nov. 20, 1900	42, S.	3 lb. 11 oz., cervix involved, rapid growth; no menorrhagia	One saved	February, 1904	Good general health. No period since operation; frequent, rather severe flushings.

			lesions to small intestine and cicatrix of a former operation			lings and vertigo second year after operation.
34	Jan. 28, 1901	42, M.	Bulky œdematous tumour; no menorrhagia	One saved	March, 1904	Good general health. Period quite regular.
35	Feb. 5, 1901	43, M.	8 lb., large fibroid; menorrhagia from youth	Both removed; normal	February, 1904	Good general health. No period since operation; flushings severe for 2 years, now occasional and milder.
36	Feb. 19, 1901	42, M.	2 lb. 10 oz., bulky; severe menorrhagia, anæmia	Both removed	May, 1904	Good general health; anæmia from menorrhagia disappeared. Period reappeared 3 months after operation and continued regular for 7 months, now only occasional show.
37	March 26, 1901	50, M.	2 lb., rapid growth, broad ligament involved; no menorrhagia	Both removed	November, 1904	Good general health, corpulent. No period since operation; no flushings.
38	April 12, 1901	41, M.	2 lb., very bulky; severe menorrhagia	Both removed	February, 1904	Good general health. No period since operation; attacks of slight flushings and giddiness.
39	April 18, 1901	30, S.	Necrotic fibroid; infection from adherent intestine; no menorrhagia	One saved	Sept., 1905	Good general health. Period regular except twice; a severe attack of flushings associated with dyspepsia.
40	May 6, 1901	45, M.	12 lb. 7 oz., myxomatous degeneration; occasional hæmorrhages	Both saved	March, 1905	Good general health, corpulent. Period regular three times after operation, then complete cessation; no flushings.
41	May 7, 1901	43, M.	Large tumour; dyspnœa, menorrhagia	Both removed	May, 1903	Good general health. No period since operation; flushings during convalescence ceased completely.

No.	Date of operation.	Age of patient, &c.	Character of fibroid.	Treatment of ovaries.	Date of last report.	Condition according to last report.
42	May 30, 1901	41, M.	8 lb. 6 oz. and 1½ pints cystic fluid, rapid growth; menorrhagia	Both removed; full of dropsical follicles	February, 1904	Good general health. No period since operation; severe flushings for a year or two.
43	June 13, 1901	41, S.	3 lb. 12 oz., rapid growth, pressure symptoms; no menorrhagia	One saved; removed ovary was cystic	June, 1904	Good general health, corpulent. Period regular though scanty first year, less regular second year, and only seen twice third year; recently slight flushings.
44	July 4, 1901	41, S.	2 lb. 11 oz., severe pressure symptoms; menorrhagia	Both removed; both cystic; accessory ovary in one ovarian ligament	February, 1904	Fair health. No period since the operation; occasional severe flushings with headaches.
45	July 11, 1901	41, S.	Small, severe pressure symptoms; no menorrhagia	Part of one ovary saved	December, 1904	Good general health. No period since operation; flushings severe and frequent for 2 years, now milder and less frequent.
46	Nov. 5, 1901	45, S.	Painful necrotic myoma; menorrhagia. Neurotic patient	Both saved	May, 1904	Persistence of neurotic symptoms, originating after railway accident 26 years before operation. Period continued until spring of 1903.
47	Jan. 7, 1902	39, M.	Large fibroid; pregnancy	Both removed	June, 1905	Good general health. No period since operation; no flushings.
48	Feb. 25, 1902	30, M.	Bulky fibroid, 4 lb. 13 oz.; menorrhagia	Left saved; cyst of right broad ligament	February, 1905	Good general health. No period since operation; frequent troublesome flushings for about 2 years, now ceased.
49	March 13, 1902	41, S.	Necrotic fibroid, 2 lb. 2 oz., in posterior wall; menorrhagia	Both saved	March, 1905	Good general health. Period still very regular; no flushings, but feels weak when show is present (about 2 days).

						none since, but slight molimen at times.
51	April 29, 1902	41, S.	Cervical fibroid compressing bladder; slight menorrhagia	Left ovary saved	April, 1905	Good general health. Period continued regular until August, 1903, when it ceased abruptly; now suffers every 3 weeks from headaches and flushings, followed by great relief for a week.
52	May 29, 1902	40, S.	Mass of small fibroids; menorrhagia	Right ovary saved; left cystic	May, 1904	Good general health. Period regular for a year and a half after operation, now 6 weeks' or longer interval; show scanty; no flushings.
53	July 17, 1902	39, M.	Large mass of fibroids; menorrhagia	Both saved	February, 1905	Good general health. Period still regular (amenorrhœa for 3 months in second year after operation); no flushings.
54	Oct. 7, 1902	30, M.	Large fibroid; pregnancy; no previous menorrhagia	Both removed; normal	December, 1904	Good general health. Period never seen since operation; no flushings until 18 months after operation, then they lasted for a few weeks, and were for a time severe.
55	Oct. 14, 1902	52, S.	5 lb., large burrowing fibroid; pain, menorrhagia	Right saved	February, 1905	Good general health. No period since operation; no flushings.
56	Oct. 28, 1902	46, S.	6½ lb. tumour, also myoma in mesosalpinx; pain, menorrhagia	Right saved	December, 1904	Good general health. No period since convalescence; no flushings.
57	Nov. 11, 1902	42, S.	Large fibroid, 6 lb. 5 oz.; menorrhagia	Right saved	December, 1904	Good general health. Period began 2 months after operation, continues regular, but scanty.
58	Nov. 20, 1902	42, M.	4½ lb., bulky; no menorrhagia	Left saved; removed ovary diseased, (see text)	April, 1905	Good general health. Regular, distinct molimen still, but show at period ceased a few months after operation; no flushings.

No.	Date of operation.	Age of patient, &c.	Character of fibroid.	Treatment of ovaries.	Date of last report.	Condition according to last report.
59	Jan. 5, 1903	42, S.	6 lb.; menorrhagia; vomiting at period	Left saved	February, 1905	Good general health. No trace of period since operation; no flushings, but occasional sick headache (see text).
60	Feb. 24, 1903	44, S.	3 lb., very bulky, originating in cervix; numerous small interstitial fibroids; fibroid polypus in cervix; menorrhagia 18 months	Right saved	March, 1905	Good general health, corpulence. Period regular until November, 1904; not seen since; no menopause symptoms.

I. Introduction.

This communication is mainly an analysis of a series of sixty cases of subtotal or supravaginal hysterectomy for fibroids in my own operative practice from March, 1897, to February, 1903, where, in every instance, the patient had not reached the menopause and a sufficiently long after-history was obtainable. Each patient was traced for at least two full years, and most of the cases have been under observation for a much longer space of time. Where one or both ovaries are saved a two years' history is absolutely needed, for, as will be seen, a kind of period may be observed for many months after a subtotal hysterectomy where both ovaries have been removed. I have on that account rejected several interesting cases, the after-histories being too short or otherwise imperfect.

After-histories carefully collected are essential when hysterectomy for fibroid, whatever be the variety of the operation in question, is considered as a procedure of benefit to the patient, just as they are essential for judging the value of operations for the removal of a pyosalpinx or an ovary damaged by chronic inflammation. In the pages of the medical press we read of series of the latter class of operation without a single after-history, recovery being reckoned as cure; unfortunately, late complications are extremely common and persistence of more or less local pain is the rule. So it is with hysterectomy: long series of "successful cases" without after-histories are useless, for recovery is by no means always what the patient would consider cure. The tumour is gone, it is true, its removal has not involved the sacrifice of the patient's life, but certain discomforts may for a while embarrass the patient, and the surgeon should be aware of the nature of these possible discomforts.

The main object of my research into my own work is to determine (1) how far the patients receive lasting benefit from subtotal hysterectomy; (2) how far they are liable to certain discomforts; and (3) how far the preservation

of more or less ovarian tissue may save them from those discomforts.

(1) There can be no doubt that so far as the removal of the tumour is concerned the immediate results of this operation after convalescence are highly satisfactory, hence I need not dwell upon its different stages, from the delivery of the tumour through the abdominal incision up to the closure of that incision nor on adhesions and other complications ; two subjects, however, in association with the steps of the operation itself must be seriously considered under the third head.

(2) That uncomfortable or even distressing symptoms not rarely follow the operation there can be no doubt, and these statistics show that the operator cannot absolutely guarantee the patient against them. From this, the second head, it follows that we must be careful how we urge an operation where the patient is subject to a fibroid of small size which is not growing, not pressing on any important structure, and not the cause of hæmorrhage. To these qualifications we must add that although relative youth is an argument in favour of operation, the presence of a small fibroid above the lower segment of the uterus does not justify any surgical procedure which may sterilise the patient, for pregnancy and labour often end normally in such cases. In short, where a patient is living in perfect comfort and capable of bearing children the removal of a fibroid uterus,* though attended with little risk to life, necessarily involves barrenness and may very possibly be followed by much discomfort.

(3) Manifestly, however, under many circumstances the removal of the fibroid uterus is demanded, so that certain possible discomforts must be risked. How to counteract them is a problem which the surgeon must face. This problem is in part solved, the saving of ovarian tissue has proved of direct benefit, and the appended tables tend to confirm the value of that practice. In

* The question of myomectomy does not come within the scope of this communication.

fact, it is good to save one ovary at least, provided it be healthy. Should both ovaries be diseased they must come away; the annoyance of a premature menopause is slight, and the chances of grave mental disturbance is small compared with the dangers of a suppurating tube or ovary or the development of an ovarian cystic tumour.* But healthy ovarian tissue may be saved, and when preserved it will probably keep the patient from unnecessary discomfort.

Is it sufficient, however, to save ovarian tissue? The theory has been advanced that it is of little or no avail unless some endometrium be preserved as well. This means that in subtotal hysterectomy the surgeon should not only save one ovary at least, but should also amputate above the os internum in order to anticipate and prevent trouble from a premature menopause. This theory, which must be taken into account by the advocates of panhysterectomy where cervix and endometrium are of necessity sacrificed entire, was first advanced by Abel and Zweifel, on the ground of experience similar to my own. For the sake of convenience it may be distinguished by the names of those authorities. Professor Zweifel in 1899 declared at an annual meeting of the German Gynæcological Society that Abel had followed up a series of cases of conservative subtotal hysterectomies and found that when the body of the uterus was amputated entire, atrophy of the ovaries left behind always followed, so that within three years troublesome menopause symptoms set in, just as is often observed after removal of both ovaries. Yet in three instances under Abel's observation a portion of the endometrium or uterine mucous membrane was saved, and it happened that the patients all continued to menstruate and were all free from flushings and other neuroses.†

* It is rarely necessary to sacrifice both ovaries for purely surgical reasons, such as perfect hæmostasis.

† "Bericht ueber die Verhandlungen der 8 Versammlung der deutschen Gesellschaft für Gynäkologie in Berlin," 'Zentralbl. f. Gynäk.,' No. 21, 1899. The above researches are noted on p. 616. The operator should

Zweifel endorses Abel's teaching and insists that it is the operator's duty to save a piece of the uterine mucosa whenever possible.

Thus there would appear to be advantages in putting the Abel-Zweifel theory into practice; that is to say, it is good that the amputation of the uterus be not carried so low as the level of the os internum. On that account I have scrutinised my own practice in regard to the level of amputation in each case in my series. There are disadvantages in leaving a relatively big stump, but they mainly concern the immediate effects of the operation during convalescence, a subject not within the scope of the present argument. It is for the advocates of panhysterectomy to show whether that operation be not followed by bad menopause symptoms even when the ovaries are saved. In Herbert Spencer's table of fourteen cases of total abdominal hysterectomy for fibromyoma uteri, published in October, 1902 *, no after-histories are given and the majority of cases underwent operation later than October, 1900. A full series of after-histories from that consistent advocate of panhysterectomy would be of high interest.

Mandl and Bürger in their valuable monograph on the biological status of the ovaries after removal of the uterus,† seem to imply that such symptoms do follow this conservative panhysterectomy. They are suspiciously cautious in their concluding remarks. Conservative treatment of the ovaries, they declare, has undoubted advantages, but preference cannot safely be given to it without qualification. Indeed, these authorities fail to see their

read Zweifel's warnings at page 615 about the importance of tender handling of the stump, of necessity larger than when only a portion of the cervix is left behind.

* "Total Abdominal Hysterectomy for Fibromyoma Uteri," 'Brit. Med. Journ.,' vol. ii, 1902, p. 1131.

† "Die biologische Bedeutung der Eierstöcke nach Entfernung der Gebärmutter," 'Experimentelle und klinische Studien.' Leipzig, 1904. This work includes six tables of abdominal and vaginal panhysterectomies for various diseases.

way to the guaranteeing of permanent good results after extirpation of the uterus, whether the ovaries be more or less saved or entirely removed. They make full allowance for the relative safety and facility of hysterectomy after the most modern methods, but point out that even now the remote results of such proceedings are not always satisfactory. Therefore, removal of the uterus is not to be attempted lightly, and it is better to "conserve" the organ as long as possible than to do a conservative operation.*

Unfortunately, no sound conclusions can be founded on comparisons between my own results and those reported by Mandl and Bürger, for their table of cases of abdominal panhysterectomy with saving of one or both ovaries is based on only fourteen of such operations, an insufficent number,† according to the author's own admission, whilst I have been able to collect thirty-two cases of subtotal hysterectomy with saving of one or both ovaries, all in my own surgical practice, between March, 1897, and February, 1903.

In my Harveian Lectures ‡ I dwelt on the value of Dr. Crewdson Thomas's § well-known article which appeared about four years ago in the 'Lancet.' My own researches have been greatly facilitated by the study of his tables of after-histories. They include one hundred cases, representing the practice of several operators, whilst my tables include sixty confined to my own practice. I have on due deliberation modified Dr. Thomas's tabulation. His headings were six in number—(1) Number of Cases, (2) Years of Age, (3) Date, (4) Operation, (5) Present Condition, and (6) Artificial Menopause. I have retained headings (1) and (3), whilst under (2) I have added "Md. or S."—

* "Lieber so lange als möglich zu konserviren als conservativ zu operiren" (*loc. cit.*).

† "Es sind diese Zahlen zu klein" (*ibid.*).

‡ "Fibroids of the Uterus and its Ligaments considered from a Clinical and Surgical Standpoint," 'Lancet,' February 7th, 14th, and 21st, 1903.

§ "The After Histories of One Hundred Cases of Supra-Vaginal Hysterectomy for Fibroids," *ibid.*, February 1st, 1902, p. 294.

married or single. Thomas's (4) is altered for the sake of greater accuracy to "Treatment of Ovaries," whilst headings (5) and (6) are blended under the title "Condition according to last Report," another heading "Date of last Report," being added for evident reasons; thus in No. 2 in my tables there is a history seven years long, but I have not heard of the patient since July, 1904. I have also introduced one more heading, "Character of Fibroid," including, of course, the existence or absence of hæmorrhages, for the clinical history of fibroid disease prior to operation is of high importance in this respect. But full menstrual histories from puberty were not always to be obtained, nor is it in every instance possible to determine how far menorrhagia existent from puberty (as in No. 35 in my tables) may represent very early development of the tumour, or be explained by other causes. The relation of pregnancy to fibroid disease is uncertain, so I have excluded tabulation of children and abortions. Lastly, I have reserved the question of amputation above or below the level of the os internum for the analytical part of the memoir, as it involves points of detail not easy to tabulate. When the lower segment of the uterus is not involved, it is easy enough for the operator to choose his level, but choice is often impossible when the fibroid lies low in the uterus or occupies the cervix, for even when the uterus is amputated it is not easy to feel sure whether the mucous canal which lies conspicuous on the cut surface of the stump be cervical or uterine.

II. Analysis of the Tables.

Both Ovaries removed.

Twenty-eight cases come under this heading, namely, Nos. 1, 2, 3, 4, 5, 6, 10, 12, 13, 14, 16, 23, 25, 26, 28, 29, 30, 31, 33, 35, 36, 37, 38, 41, 42, 44, 47, and 54.

Ages.

Thirty to 35, three—Nos. 14, 33, and 54; 35 to 40, two—Nos. 26 and 47; 40 to 45, seventeen—Nos. 1, 2, 3, 4, 6, 12, 13, 16, 25, 28, 31, 35, 36, 38, 41, 42, and 44; 45 to 50, five—Nos. 5, 10,23, 29, and 30; 50 and over (still menstruating), one—No. 37.

Results.

(1) *Menopause neither immediate nor complete.*—Three cases—Nos. 12, 29, and 36.

(2) *Menopause complete; no symptoms.*—Six cases—Nos. 1, 6, 31, 37, 41, and 47.

(3) *Menopause complete; distinct but mild symptoms.*—Nine cases—Nos. 2, 4, 5, 13, 16, 23, 28, 33, and 38.

(4) *Menopause complete; severe symptoms.*—Ten cases—Nos. 3, 10, 14, 25, 26, 30, 35, 42, 44, and 54.

Analysis of the three Cases where the Menopause was neither immediate nor Complete.

Ages.—Two between 40 and 45—Nos. 12 and 36; one of 45—No. 29.

Married or single.—One married—No. 36; two single—Nos. 12 and 29.

Hæmorrhages.—One severe, great anæmia—No. 36; one moderate—No. 12; one none—No. 29.

Size of tumour.—Big in all three cases.

Line of amputation noted as above os internum in Nos. 12 and 36, below in No. 29.

Ovaries normal in all three cases.

In this series No. 12 is very interesting. There could be no doubt that the ovaries were completely removed, the ovarian vessels, much enlarged, being ligatured and divided far external to the limits of ovarian tissue, and there could likewise be no doubt that some of the endometrium was also left behind. There was show of blood with molimen

for two years, often at intervals of five or six weeks, yet the persistent period was accompanied by flushings, which ceased when the period itself stopped, rather suddenly, two years after the operation. Case 36 was somewhat similar, but the patient at the time of operation was exceedingly anæmic owing to chronic menorrhagia. Amenorrhœa followed the removal of the diseased uterus and lasted for three months; then the period returned and remained moderate and regular for seven months, becoming afterwards scanty. It was very irregular at the date of the last report. In Case 29, although, as in the others, the ovaries were completely removed, no endometrium was left, amputation being below the os internum, but possibly the cervical mucosa contained endometric elements just as it may develop decidual cells in pregnancy (Blumberg).* The distinct coloration of the mucous discharge at regular intervals points to true menstruation.

Analysis of the six Cases where the Menopause was complete without Symptoms.

Age.—One under 40—No. 47; four between 40 and 45—Nos. 1,† 6, 31, and 41; one (No. 37), aged 50, yet still regular at the date of operation.

Married or single.—Four married—Nos. 31, 37, 41, 47; two single—Nos. 1 and 6.

Hæmorrhages.—Menorrhagia distinct in Nos. 1, 6, and 41, absent in No. 37, also in 31 and 47, who were pregnant at the time of operation. ‡

Size of tumour.—Large in all cases, complicated with pregnancy in Nos. 31 and 47, and so bulky as to cause dyspnœa in No. 41.

* "Ueber Deciduazellen in der Cervix bei intra corporaler Gravidität," 'Archiv f. Gyn.,' vol. lxxv (1905), p. 203.

† The attacks of syncope to which the patient had been subject before the operation have never recurred. I detailed the case in "Fibroids, Heart Disease, Syncope, and Pulse," 'Journ. Obstet. and Gyn. of British Emp.,' vol. iii, p. 13.

‡ Neither had suffered from menorrhagia before the operation.

Line of amputation.—A little doubt about No. 41, but in all the remaining five, including the two that were gravid, the incision was *below* the os internum, yet flaps of uterine tissue were made. The complete suppression of the catamenia in these cases would seem to imply that the retention of muscular tissue from the uterus without endometrium is insufficient to allow the phenomenon of menstruation to continue.

Ovaries.—Apparently normal, except in No. 1, where one ovary was of the size of a crow's egg and contained an old blood-clot.

Analysis of the nine Cases where the Menopause was complete, with distinct but mild Symptoms.

Age.—One between 30 and 35—No. 33; six between 40 and 45—Nos. 2, 4, 13, 16, 28, and 38; two between 45 and 50—Nos. 5 and 23. The eldest, No. 5, was 49 years old, yet the flushings went on for three years after the operation.

Married or single.—Six married—Nos. 2, 5, 13, 16, 33, and 38; and three single—Nos. 4, 23, and 28.

Hæmorrhages.—Severe in four—Nos. 2, 4, 16, and 38; moderate in three—Nos. 5, 23, 33; none in two—Nos. 13 and 28.

Size of tumour.—9 lb. 13 oz. in No. 13, 8 lb. 9 oz. in No. 5, 6 lb. in No. 2, 5 lb. in No. 16, 4 lb. 6 oz. in No. 28, 3½ lb. in Nos. 23 and 33, 2 lb. in No. 38, and small (about 1 lb., not weighed) in No. 4. Thus in this sub-series the majority were big. Nos. 28, 33, and 38 were very bulky from degenerative changes. In No. 33 an exploratory operation had been performed two years before the hysterectomy. I found two coils of small intestine adherent to the cicatrix in front and to the anterior aspect of the tumour behind, rendering much dissection necessary. Manipulations of abdominal viscera during the separation of adhesions may, of course, prejudice

results, but in operations on fibroid uteri as compared with ovariotomy they are seldom necessary.

Line of amputation.—Certainly *below* level of os internum in four—Nos. 2, 4, 16, 33; certainly *above* that level in five—Nos. 5, 13, 23, 28, 38.

Condition of ovaries removed.—Normal in five—Nos. 2, 5, 13, 23, 38. One ovary enlarged without cystic degeneration, one case—No. 33. One or both cystic, two—Nos. 16, 28. Small cystic degeneration marked in one—No. 4.

Menopause symptoms in these cases.—The trouble was confined to flushings in seven out of nine cases, whilst in No. 23 there were occasional attacks of tinnitus aurium as well, and in No. 33 attacks of vertigo at times accompanied the flushings. Thus in all the nine flushings were noted. This symptom, common to all, did not appear until the second year in one case, No. 33, and soon subsided. In one case, No. 13, the symptom appeared soon after the operation, but became more marked in the third year, after which the flushings grew rare. In the remaining seven cases the flushings were experienced soon after the removal of the fibroid uterus and continued for one, two, or even three (No. 5) years, but steadily grew less and less marked.

Age, it will be seen, bore no evident relation to the symptoms. Two thirds of the patients were between 40 and 45; only one was younger, and in her (No. 33) the symptoms were remarkably delayed.

Analysis of the ten Cases where the Menopause was complete, with severe Symptoms.

Age.—Two between 30 and 35—Nos. 14 and 54; one between 35 and 40—No. 26, the worst case; five between 40 and 45, namely three aged 41—Nos. 25, 42, and 44, including the second case in degree of severity—No. 25; one aged 42—No. 3; and one aged 43—No. 35; two between 45 and 50—Nos. 10 and 30. The two worst cases were about 40. No. 26 was 38 and No. 25 was 41,

but next in order of severity came the two eldest—No. 10, aged 47; and No. 30, aged 49. But No. 10 is apparently the purest instance of severe menopause in the series, for in respect to the others certain complications will presently be noted.

Married or single.—Six married—Nos. 3, 10, 26, 35, 42, and 54 (the last was pregnant); four single—Nos. 14, 25, 30, 44.

Hæmorrhages.—None, and no menorrhagia in four—Nos. 14, 25, 26,* 54. Present in six—Nos. 3 and 10 very anæmic, No. 3 suffering from several recent floodings, the tumour was necrotic. No. 10 was distressed by menorrhagia; between the attacks much watery discharge of doubtful character was observed, but the patient was free from any sign of malignant disease. The remaining four were not anæmic, although in Nos. 30 and 42 large clots were passed and the patients were laid up at every period, as was the case in No. 44, where the bleeding was confined to the period. In No. 35 the period had been very free from youth; the tumour was large in this case. It is noteworthy that there had been no menorrhagia nor intermenstrual hæmorrhages in Nos. 25 and 26, where the after-histories were the most unsatisfactory in the entire sixty cases.

Size of tumour.—The majority in this sub-series of severe menopauses were large. In No. 42 the total weight of the uterus and tumour amounted to nearly 10 lb., as a pint and a half of cystic fluid was measured, and the tumour and uterus weighed 8 lb. 6 oz. In No. 35 the entire mass weighed 8 lb.; No. 54 was also very heavy, with a fœtus in the uterine cavity. In the worst case (No. 26) the uterus and tumour weighed 4 lb. 12 oz.; some interstitial fibroids were dissected out of the cervix. In No. 25, another bad case, the tumour weighed 3 lb., and chiefly occupied the wall of the cervix. In No. 14 the mass weighed 4 lb. 12 oz., and was in part cervical; in

* One of the only cases of an approach to amenorrhœa in the whole series.

No. 30, 4 lb.; in No. 44, 2 lb. 11 oz.; in No. 10, 1 lb. 10 oz.; and, lastly, in No. 3 the mass was not weighed, it extended upwards to within an inch of the level of the umbilicus, and was necrotic. Thus in the majority of these bad cases the tumour was big, whilst pressure symptoms were marked in Nos. 14, 25, 30, and 44, where at least in three the growth was relatively small.

Line of amputation.—Certainly below the os internum in six cases—Nos. 14, 25, 30, 35, 44, and 54. As for the remaining four, muscular tissue was certainly left in the flaps, but I cannot feel sure about the level of amputation. These four (Nos. 3, 10, 26, and 42) include the worst, No. 26, where I noted in my case-book "Uterine muscular tissue in the anterior flap, a fibroid of the size of a pigeon's egg shelled out of cervix posteriorly." I have on more than one occasion done an enucleation of this kind after intentionally amputating above the os internum. In case No. 25 I noted distinctly "cervical amputation, but uterine tissue in flaps," thus, as in 14, 30, 35, 44, and 54, no endometrium was left, but I cannot feel sure in which of the other cases any endometrium remained.

Condition of ovaries removed.—In the two worst cases both ovaries were distinctly cystic in No. 25 and one was cystic in No. 26. The same was the case in four others—Nos. 3, 30,* 42, and 44. In one ovarian ligament (No. 44) I found an accessory ovary, a condition which may, in some cases, explain the persistence of menstruation and the possibility of normal pregnancy after the removal of both ovaries in operations for ovarian tumours, inflammatory disorders of the appendages, and ectopic gestation. The ovaries were free from any morbid appearance in Nos. 10, 14, 35, and 54.

Menopause symptoms in these cases.—In two patients these symptoms were associated with mental disease. No. 26 was an eccentric and intemperate subject, who, reforming for a while after convalescence, resumed her bad habits

* There was some uncertainty about the condition of the left ovary in this case.

about three years after the operation, when the flushings which had troubled her had ceased. At the end of six months she drank carbolic acid, probably with suicidal intent, and the dose proved fatal. She was relatively young—38, the appendages were diseased, so that I deemed it safer to remove both. No. 25 was an intellectual woman of cheerful disposition, not alcoholic, aged 41. Neither she nor those of her relatives whom I saw before the operation informed me that she had already been mentally afflicted. The ovaries, which I removed, were decidedly cystic. In the autumn of 1900, about five months after the operation, she suspected a relative of an intent to murder her. The delusion passed away, occasionally returning. In this case there was no trouble from flushings.

Crewdson Thomas's tables also include two cases of insanity. In the first the patient's mental condition was unstable, and the operator saved both ovaries. Melancholia developed three years after the operation. Seeing that the patient was highly neurotic, I was very particular about the ovaries in No. 46; I saved both, and the long-standing neurotic symptoms have not been complicated by insanity, yet Thomas's case did badly, although the ovaries were saved. In Thomas's second case both ovaries were removed from a patient who seemed perfectly sane. She was a lady's maid, and within two years of the operation her mistress died suddenly; the shock was the immediate cause of insanity, and she was admitted into an asylum.

It is hardly possible to determine the precise relation between the operation and the mental disease in Nos. 25 and 26. Mental symptoms may follow any kind of operation. They are by no means rare after ovariotomy and operations on the appendages, where psychoses are frequently pre-existent. But women are subject during sexual life to many influences prejudicial to sanity. This was the case in No. 26, where intemperance was evident, but other evils may be overlooked, as in two cases of pelvic sur-

gery within my own knowledge, where it transpired that the patients had been exposed to much domestic worry. Temporary melancholia developed after the operation. In other cases the true cause may remain undiscovered, the operation receiving the blame.

No. 6* shows the great importance of a long and accurate after-history, when rumours of mental disease get about. The patient after convalescence disagreed with her friends and went to live with a newly-made female acquaintance far from her home. Her friends drew conclusions about her mental condition which proved unfounded. I was under the impression that she might be mentally affected when I delivered my Harveian Lectures. But early in 1905 the patient consulted me, and I found that she had been in perfect mental and bodily health ever since the hysterectomy and free from any menopause symptoms.

Lucien Picqué, who discovered that 89 per cent. of insane women under his observation were subject to gynæcological affections not all due to septic influences, lays great stress on infection as the cause of puerperal mania.† Possibly infection of ligatures may play a share in causing insanity after operations on uterine and ovarian tumours.

In respect to the eight remaining cases, it will be seen that the severe menopause symptoms were limited to flushings, which did not appear until eighteen months after the operation in one case (No. 54). That case was the youngest; the next in years (No. 14) was 33 years of age. It is noteworthy that all the remainder, except the worst case (No. 26), aged 38, were over forty, and that the eldest (No. 30), aged 49, suffered severely from flushings; her health,

* Sister to No. 12. I performed hysterectomy for fibroid on a third sister last summer, but of course the case is too recent for inclusion in the series. See "Hysterectomy for Fibroid Diseases in Three Sisters: Recovery," 'Brit. Med. Journ.,' October 14th, 1905, p. 924.

† "Considérations sur les Psychoses Post Partum (Fausses Aliénées et Folie Viscerale)," 'L'Obstétrique,' March, 1905, p. 161.

however, was much impaired by overwork and anxiety. Thus, in this sub-series, it was not the youngest patients that suffered most.

In none of the above twenty-eight cases, where both ovaries were removed, were any symptoms observed indicating the development of cardiac mischief after the operation.*

One Ovary saved.

Twenty-six cases come under this heading, namely Nos. 7, 8, 9, 11, 15, 17, 18, 19, 20, 22, 24, 27, 32, 34, 39, 43, 45 (part of one ovary only), 48, 51, 52, 55, 56, 57, 58, 59, 60.

Ages.

Under 30, two cases—Nos. 11 (29), and 20 (27); 30–35, two cases—Nos. 39 and 48 (both 30); 35–40, four cases—Nos. 17 (38), 19 (39), 22 (36), and 27 (38); 40–45, fourteen cases—Nos. 7, 8, 18, 52 (all 40), 15, 43, 45, 51 (all 41), 32, 34, 57, 58, 59 (all 42), and 60 (44); 45–50, three cases—Nos. 9, 24, and 56 (all 46); over 50, one case—No. 55.

Results.

(1) *Catamenia regular for a longer or shorter period after operation,* eight cases—Nos. 19, 34, 39, 43, 51, 52, 57, and 60.

(2) *Catamenia appearing after operation, but irregular,* five cases—Nos. 17, 20,† 24, 27, and 58.

(3) *Menopause complete and immediate after operation,* thirteen cases—Nos. 7, 8, 9, 11, 15, 18, 22, 32, 45, 48, 55, 56, and 59.

* See Pollak (reference further on, under heading "General Health of the Patients," footnote).

† As will be explained, No. 20 might be included in the first division, as the period returned and continues.

Analysis of the eight Cases where the Catamenia were regular for a longer or shorter Period after Operation.

Age.—One between 30 and 35—No. 39 (aged 30); one between 35 and 40—No. 19; six between 40 and 45—Nos. 34, 43, 51, 52, 57, 60. It will be seen that amongst the thirteen cases where the menopause was complete the majority (7) were also between 40 and 45.

Married or single.—Only one (No. 34) was married, seven being single—Nos. 19, 39, 43, 51, 52, 57, 60.

Hæmorrhages.—Severe menorrhagia two cases Nos. 19, 52; slight in three cases—Nos. 51, 57, and 60 (in the last there was a fibrous polypus of the cervix); none in three—Nos. 34, 39, and 43.

Size of tumour.—Large in five: No. 57, 6 lb. 5 oz.; No. 43, 3 lb. 12 oz., bulky, pressure on pelvic organs; it extended to above the umbilical level; No. 34 bulky and œdematous; No. 19 large, including part of cervix; No. 60 very bulky, involving cervix but not exceeding 3 lb. in weight. Moderate size, infected from intestinal adhesions,* possibly congenital malformation, one—No. 39; small, chiefly cervical, pressing on bladder, one—No. 51; mass of small fibroids, one—No. 52.

Line of amputation.—Designedly above os internum in seven—Nos. 43, 19,† 34, 39, 51, 52, 60; "uterine flaps" one—No. 57.

These results are important, as in the great majority of the cases where I designedly amputated above the level of the os internum and made note of the fact the catamenia persisted for some time after the removal of the fibroid uterus.

Menopause symptoms in these cases.—In three, namely Nos. 34, 39, and 57, the period was persistent according

* "Sloughing Fibroid of the Left Uterine Cornu: Abnormal Relations," by Alban Doran and Cuthbert Lockyer, M.D. 'Obstet. Soc. Trans.,' vol. xliii, 1901, p. 272. This communication includes a drawing of the tumour.

† The lower part of the myoma was enucleated from the cervix, and the uterus was amputated above the os internum.

to the last report; No. 39 had an attack of flushing of the face associated with dyspepsia, probably caused by excessive tea-drinking. In No. 19 amenorrhæa set in two years after the operation, clearly owing in great part to pulmonary disease; there were no menopause symptoms. In Nos. 52 and 60 the period began to grow scanty in the course of the second year without symptoms; in No. 43 it began to cease in the third year and mild flushings were noted.

No. 51 showed a phenomenon unique in the entire series. There was regular show for sixteen months. From that date until the last report, three years after the operation, slight headache and flushings occur with perfect regularity every three weeks, and on ceasing the patient feels a sense of relief, just as was the case when the catamenia were normal.

Condition of ovary removed.—Normal in five—Nos. 34, 39, 51, 57, and 60; cirrhosed in 1—No. 19; cystic in two—Nos. 43 and 52.

Analysis of the five Cases where the Catamenia appeared after Operation, but were irregular.

Age.—One between 25 and 30—No. 20; two between 35 and 40—Nos. 17 and 27; one between 40 and 45—No. 58; one between 45 and 50—No 24.

Married or single.—Four married, one (No. 27) single.

Hæmorrhages.—One distinct menorrhagia—No. 20; one moderate—No. 27; none in Nos. 17, 24, and 58.

Size of tumour.—Six lb. in one case—No. 24; over 4 lb. in two—Nos. 20 and 57; small bleeding tumour in one—No. 27—small pelvic tumour causing dysuria in one—No. 17.

Line of amputation.—All divided above os internum. "Much uterine tissue" was left in No. 20.

Condition of ovary removed.—Normal in three—Nos. 17, 20, and 27; small cystic degeneration in one—No. 24; "cartilaginous hardness" according to a report by Dr. Cuthbert Lockyer, one—No. 58.

Menopause symptoms in these cases.—No. 20 should, perhaps, come under the first class in this sub-series, as the period continues four years after the operation, but there was amenorrhœa for six months in the second year, unaccompanied by flushings. Temporary amenorrhœa, it will be seen, occurred in No. 53, where both ovaries were saved. In No. 58 the result was remarkable; a periodical show of blood was seen regularly for five or six months after the operation, then it ceased entirely, but up to the date of the last report the menstrual molimen was felt with perfect regularity. This interesting phenomenon has lasted for two years. No flushings or other general symptoms have been noted. In No. 17, a woman aged 38, the catamenia were regular, though scanty, for a year, then they vanished abruptly; no troublesome symptoms followed. In No. 27 the catamenia continued scanty and irregular for at least two years without attacks of flushings. The patient suffered from headaches, but the cause was uncertain. In No. 24 there was still occasional slight show over three years after the operation, when the patient had reached the age of 49. Flushings, often troublesome, began in the second year, when the patient was about 48, and continued troublesome at the date of the last report. The menopause was probably normal in this instance.

Analysis of the thirteen Cases where the Menopause was complete and immediate after Operation.

Age.—One between 25 and 30—No. 11; one between 30 and 35—No. 48; one between 35 and 40—No. 22; seven between 40 and 45—Nos. 7, 8, 15, 18, 32, 45, 59; two between 45 and 50—Nos. 9 and 56; lastly one aged 52—No. 55. The last case was an instance of a not rare condition, deferred menopause associated with fibroid disease.

Married or single.—Five married—Nos. 7, 15, 18, 22, 48; eight single—Nos. 8, 9, 11, 32, 45, 55, 56, 59.

Hæmorrhages.—Severe in one—No. 7; free menorrhagia in six—Nos. 11, 15, 48, 55, 56, 59; no bleeding of any kind in six—Nos. 8, 9, 18, 22, 32, 45.

Size of tumour.—Very large, over six lb., in two cases—Nos. 56 and 59; bulky or heavy in seven—Nos. 7, 8, 9, 18, 32, 48, 55; small in four—Nos. 11, 15, 22, and 45.

Line of amputation.—Designedly above os internum in eight—Nos. 11, 15, 18, 45, 48, 55, 56, and 59; below os internum, but with flap of uterine tissue in five—Nos. 7, 8, 9, 22, 32. In case No. 22, I may observe, the knife passed through the cervix quite a quarter of an inch below the os internum, whilst there were flaps fashioned out of the muscular wall of the uterus—in other words, there was uterine tissue but no endometrium. Yet, although the patient was a married woman over thirty-six years of age, the period never reappeared after the operation. This case seems to offer negative evidence in support of the Abel-Zweifel theory.

Condition of ovary removed.—Normal in seven—Nos. 8, 18, 32, 45, 55, 56, 59; removed with diseased tube in three cases—Nos. 7* (hydrosalpinx), and 15 and 22 (both pyosalpinx); cirrhotic in one—No. 9; cystic in two—Nos. 11 and 48 (in the latter case a cyst had developed in the broad ligament).

Menopause symptoms in these cases.—In four cases there were no symptoms—Nos. 8, 9, 55, and 56. In two the symptoms which followed had existed before operation. The first (No. 15) was subject to epistaxis, which still occasionally occurs. The patient also complained of headache about a year after operation, but I detected hypermetropia and the symptom disappeared when she made use of appropriate glasses. The second (No. 59) was a very neurotic subject, who had suffered for a long time from sick-headaches, which have not disappeared. Mild but distinct menopause symptoms were observed

* The ovary *not* removed was flattened against the bony pelvis and possibly atrophied.

in three cases—Nos. 7, 11,* and 18. No. 7 became very corpulent; in No. 18 the persistence of slight attacks of flushing for five years was singular; they had been absent for two months, according to the last report. The debility, or "all-overishness" as she termed it, must be reckoned as in all probability a menopause symptom. No. 11 was a highly neurotic patient, and she had been much distressed by flushings for some time before the uterus was removed. They continued for five years and were attended during the first twelve months with debility. The flushings have entirely disappeared according to the last report, when the patient was thirty-five years of age. In four cases the menopause symptoms were more marked; these were Nos. 22, 32, 45, and 48, but on inspecting the tables it will be seen that the symptoms were practically confined to severe flushings. In Case 45, let it be remembered, only a portion of one ovary was left behind.

None of the graver symptoms observed in some of the cases where complete menopause followed hysterectomy with removal of both ovaries were noted in the above series.

Both Ovaries saved.

Six cases come under this heading, namely Nos. 21, 40, 46, 49, 50, 53. In 1903 and 1904 I saved the ovary in over ten cases, but the histories are too short to be of reliable value. Unfortunately, I have lost sight of some other cases over two years old. I doubt whether there be any special advantage in leaving both ovaries, since one is quite sufficient for physiological purposes. In No. 46 the patient was very neurotic, and in No. 21 very young (aged 24), and I thought it judicious to save both organs,

* The pulse, which I frequently counted before I decided to operate, was 90 and distinctly irregular. There was no evidence of heart-disease. After the operation it at once became and remained regular. I have already noted this case in an article on fibroids in relation to the circulation (*vide supra*, note on No. 1).

as one alone might, for some reason, fail to function, a specially undesirable result in either case. In No. 11, another neurotic case, I would have saved both ovaries, but was obliged to take away one as it was diseased.

No. 50 was operated upon during pregnancy, and I wished to take away as little as possible—the nature and relations of the tumour allowed of the saving of both ovaries; this latter condition was also the case in Nos. 40, 49, and 53. In No. 40, where the tumour was very large, it happened that the two ovaries, quite healthy, stood well out from the lower part of the bulky tumour, but this is not the rule in cases of fibro-myoma of great size.

As to *age*. One was but 24 years old (No. 21), the youngest in the entire table; one was 30 (No. 50), pregnant; one was 39 (No. 53). The remaining three were all between 40 and 45; the two eldest (Nos. 40 and 46) were 45; whilst the third (No. 49) was 41. Thus this sub-series includes relatively the youngest patients.

Results.

(1) *Catamenia regular after operation.*—Three cases—Nos. 21, 49, 53.

(2) *Catamenia soon suppressed.*—Two cases—Nos. 40 and 46.

(3) *Menopause complete and immediate after operation.*—One case—No. 50.

Analysis of the three Cases where the Catamenia were regular after Operation.

Age 24—No. 21; 39—No. 53; 41—No. 49.

Married or single.—One married—No. 53; two single—Nos. 21 and 49.

Hæmorrhages in all three cases, in No. 21 much bleeding between periods and great anæmia.

Size of tumour.—A large mass of subserous fibroids,

No. 53; necrotic tumour, 2 lb. 2 oz., No. 49; small, 14 oz., No. 21.

Line of amputation.—Designedly above os internum in two—Nos. 21 and 49; probably below, with uterine flaps, in one—No. 53.

Catamenia.—In No. 21 the period was regular over three years after the hysterectomy, without any flushings or other disagreeable symptoms. In No. 49 it was also regular three years after the operation; there were no flushings, but the patient felt weak whilst there was show. Let it be noted that in these two cases of uninterrupted catamenia the uterus was amputated above the os internum. This supports the hypothesis that the flow is derived from the endometrium influenced by the ovaries.

In No. 53 the period was still regular nearly three years after the operation, but, as in No. 20, where one ovary was saved, there was temporary amenorrhœa, occurring for three months in the course of the second year. (In No. 20 the period was absent for six months.) Bearing in mind also No. 54, where both ovaries were removed, with complete and immediate suppression of the catamenia, yet absence of menopause symptoms for eighteen months, the necessity for a fairly long after-history is very clear. No. 53 has not suffered from flushings.

Analysis of the two Cases where the Catamenia were soon suppressed.

Age.—Both 45.

Married or single.—One married—No. 40; one single—No. 46.

Hæmorrhages.—Both cases, severe in No. 46.

Size of tumour.—Very large, 12 lb. 7 oz. in No. 40; small pelvic mass pressing on bladder in No. 46.

Line of amputation.—Designedly above os internum in one—No. 40; apparently below in one—No. 46.

Nature of menopause.—In No. 40 the period occurred

three times after the operation and then ceased abruptly; no flushings followed, and nearly four years later the patient was in good health.

In No. 46 the catamenia continued for eighteen months, ceasing abruptly. A year after the menopause the patient was free from any special symptoms. I suspect that some endometrium must have been left behind. I noted in my case-book at the time that the incision was carried low down, but the fibroid was a small spherical tumour, and in the course of an operation it is not always easy to make sure that the knife passes above or below the os internum. The importance of avoiding any increase of the neurotic symptoms in this case was evident, and they have not been increased.

Analysis of the Case where the Menopause was complete and immediate.

No. 50 was 30 years of age, married and pregnant; before gestation she had been subject to menorrhagia. The tumour was large, the line of amputation probably below the level of the os internum. No period occurred, but there was a little show of blood for five weeks about fourteen months after the operation. It is doubtful if this show could be reckoned as catamenial. Nearly one year later it had not recurred, there was no evidence of malignancy, but the patient was under the impression that she occasionally felt a slight molimen. Perhaps this case might best be ranked with Nos. 40 and 46.

Menopause symptoms and age.—It is in well-tabulated after-histories of double ovariotomy, not rare in youth, that we must seek for evidence as to the effects of removal of both ovaries in young women. Such evidence in series of amputation of both appendages for inflammatory disease or neuroses is, in my opinion, absolutely unreliable, as it is never clear that all ovarian tissue has been removed; indeed, an ovarian cyst may develop

on the distal side of a ligatured stump, and even pregnancy is not unknown. *

In subtotal hysterectomy for fibroid there can be no difficulty about correct registration of the treatment of the ovaries ; for when the operator decides upon removing them he ties their arteries far outside their external limits and takes them away with the uterus, including the entire ovarian ligament, the commonest seat of ovarian tissue beyond the ovary proper. On the other hand, when an ovary is spared, it is done designedly and recorded accordingly. Unfortunately, in cases where this operation is undertaken, the patients are rarely young and mostly within the later years of sexual life, so that the number of young cases is too limited to be of much value. Thus in these tables no less than thirty-five patients were from 40 to 45 (inclusive) years of age, and nine were older. Against these forty-four only sixteen were under forty. Out of these sixteen young subjects it will be seen that I saved one or both ovaries in eleven. It will be found on reference to the tables and analyses above that the younger cases, No. 21 (aged 24), No. 20 (aged 27), No. 11 (aged 29) and Nos. 39, 48, and 50 (all aged 30) fared well, except that there was no period after operation in No 11, whilst there were severe flushings as well as total cessation of period in No. 48. Both in No. 11 and No. 48 the line of amputation was designedly above the os internum. Five more relatively young cases remain where ovarian tissue was saved—No. 22, aged 36 ; Nos. 17 and 27, aged 38 ; and Nos. 19 and 53, aged 39. In No. 22 severe flushings occurred ; the catamenia were completely suppressed by the operation, the others did not suffer in any way.

In five out of the sixteen young subjects both ovaries were removed—Nos. 14, 26, 33, 47, and 54. The youngest was 30 years of age (No. 54) ; she comes under the severe

* See author, "Pregnancy after Removal of Both Ovaries," 'Obst. Soc. Trans.,' vol. xliv, 1902, p. 231 ; and Meredith, "Pregnancy after Removal of Both Ovaries," 'Brit. Med. Journ.,' vol. i, 1904, p. 1360.

menopause symptoms class, and it is worth noting that the flushings did not appear until eighteen months after the operation. The next (No. 33) is ranked above under the mild symptoms class: she was 32 years of age. The third (No. 14) was 33 years of age; in her case the symptoms were severe. No. 47 had no symptoms, but she had reached the age of thirty-nine, and hardly can be reckoned as young; the same may be said of the gravest case under forty, and, indeed, in the whole series, namely No. 26, where the patient was 39 years of age; besides, she was neurotic and intemperate.

The above analysis shows that I spared one or both ovaries in all the cases under thirty with good results, and also saved ovarian tissue in several other relatively young subjects with benefit; and it may be assumed that the patients would have not done so well had I sacrificed both ovaries. In fact, I acted expressly on that principle. In the five cases where I was compelled to amputate both ovaries there were bad symptoms in three, but the worse was intemperate and not so very young.

Supposing that both ovaries had been diseased in ten or twelve subjects under thirty-five in this series and both removed on that account, the results might have thrown more light on the gravity of their extirpation in young subjects, but such was not the case. In short, I feel compelled to end these observations as I began them, by stating that it is not from statistics of hysterectomy that we can learn much of definite value about this serious question.

General health of the patients.—It will be seen from these tables that the great majority of the sixty cases enjoyed good health when last heard of two years or more after the operation. Independently of catamenial disturbance, in only seven were the after-histories unsatisfactory as regards the general health of the patient.*

* Pollak ("Die anticipirte Klimax und ihre nächsten Folgen für den Organismus," 'Monatssch. f. Geb. u. Gyn.,' vol. xxii, September, 1905, p. 327) has detected fatty changes in the myocardium of castrated female

Some scrutiny of these seven after-histories is requisite. The first of the seven is No. 19, but the death of the patient nearly five years after the operation was due to fibroid phthisis. She certainly derived benefit from the removal of the tumour, as the menorrhagia which exhausted her was stopped, and she was able, notwithstanding the pulmonary complication, to return for a while to her duties as a hospital nurse.

In two cases the patient's relative ill-health at the last report was due to complications. No. 4 was troubled for some time with hæmorrhoids, much neglected, and in 1904 underwent an operation for their cure. No. 46 was a chronic "railway case"; the patient's health was distinctly improved by the suppression of the menorrhagia after the operation.

There remain four cases where the operation must have had a more or less direct relation to the result. In No. 44 the flushings were very distressing at times, and, the patient being relatively young and quite healthy, I believe that the slightly impaired health was at least mainly due to loss of the ovaries. No 30 suffered from much debility, more or less associated with the flushings, and I cannot explain the results away, but I may justly add that the patient was old already, and that she was very much overworked after convalescence. That the mental symptoms in No. 25 were excited by the operation there can be no doubt. I was quite unaware, when I performed it, that the patient had already been under restraint. No. 26 was a case of removal of a rapidly increasing fibroid from a florid woman of intemperate habits. She was given to seek relief in alcohol from all ills, including the flushings. The poisoning was more probably suicidal than accidental. As the patient was only 38 the

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animals, and on that account advises women who have undergone any operation entailing the loss of both ovaries to be very careful for some time after convalescence. I have not observed evidence of fatty heart in any of the cases in this series where both ovaries were removed.

flushings, of course, represented a premature menopause induced by the operation. The other circumstances of essential importance in respect to Nos. 25 and 26 are explained above in the analysis of the tables.

III.—General Considerations.

The results in these sixty cases can hardly be said to prejudice subtotal hysterectomy as an operation, whilst they decidedly favour the conservative treatment of the ovaries, or, more correctly, of ovarian tissue. They likewise, in my opinion, tend to support the Abel-Zweifel theory that it is necessary to spare some endometrium as well as some ovarian tissue, or, speaking surgically, that the uterus should be amputated above the os internum in order to insure the patient as much as possible against the disadvantages of a sudden artificial menopause. I should like to hear of a similar analysis of sixty cases of panhysterectomy for fibroid, where of necessity no trace of endometrium can be preserved. It may be objected that in many of the cases in my series where the uterus was amputated above the internal os, and where ovarian tissue was saved, the desired result did not occur. As I do not hold a brief for the Abel-Zweifel theory I am quite ready to admit that in these instances it is not supported, but in fairness to that theory it may be contended that the endometrium left behind might have been so much diseased in some of these cases, so much damaged in the course of operation in others, and so freely destroyed in the course of cicatrisation of the stump in the remainder that its functions could not be continued.

There can be no doubt that it is from the endometrium that the menstrual blood usually proceeds when menstruation persists after subtotal hysterectomy. Tuffier has published a report of thirty-two cases where he removed the Fallopian tubes for inflammatory disease, saving the

ovaries as well as the uterus.* Menstruation continued though the uterus was cut off from the ovaries. The blood was discharged from the entire and intact endometrium. In conservative subtotal hysterectomy the stump of the uterus is also cut off from the ovaries, yet the fragment of endometrium which it contains often discharges menstrual blood with more or less regularity.

When menstrual blood appears after amputation below the os internum it may, as has been suggested above, proceed from endometric elements in the cervical mucosa. The remarkable phenomenon observed in Nos. 12 and 36 shows that endometrium alone may discharge part of the functions of menstruation entirely without the aid of the ovaries. If so, the theory to which I have alluded must be very near the truth, and possibly this phenomenon may explain some of the once-familiar failures following the operation of removal of the ovaries for the "cure" of bleeding fibroids. Physiologists, however, have not clearly demonstrated the precise nature of the various changes in the ovaries and endometrium which together constitute menstruation.

I trust that it will be understood that I have not endeavoured to magnify the importance of good results, or to argue away bad results in order to strengthen a plea for subtotal hysterectomy. After all, it is the menopause question which is first to be taken into account after operative risks and complications have passed away. Hence, wherever in these sixty cases there was a troublesome train of menopause symptoms the result was so far bad independently of the fact that the tumour was removed and the general health after its removal good. How to

* "Conservations des Ovaires et de l'Utérus dans les Operations pour Annexites." 'Revue de Gyn. et de Chir. Abd.,' July-August, 1905, p. 723. Since I prepared this communication a case has been published by von Steinbüchel ('Zentralbl. f. Gynäk.,' No. 42, 1905, p. 1276), where after vaginal extirpation of the uterus there was a perfectly regular discharge of blood from the left extremity of the vaginal cicatrix where the left tube was fixed, attended by molimen. He considers tubal menstruation, however, as an abnormal condition.

get rid of a uterine fibro-myoma and also to avoid such symptoms entirely is a problem not yet settled, and I trust that this communication may contribute to its solution.

In conclusion, I must observe that many other questions associated with fibroids and their treatment may be suggested by these statistics, but their discussion is beyond the limits of this paper. The preparation of these tables has proved a far harder task than I anticipated, and my thanks are due to Sister Phillips, for thirteen years head nurse in my wards in the Samaritan Free Hospital, and to the medical attendants of the private cases for invaluable assistance in obtaining after-histories. The practitioner and the medical officer in out-patient departments of hospitals can furnish important information to operators who honestly wish to determine how far hysterectomy for fibroid is of lasting benefit to the patient.

Mr. Butler-Smythe congratulated Mr. Doran on his valuable contribution, and said the writer had done splendid work in the past for the Obstetrical and other Societies, but the paper read that night showed an amount of energy rarely met with in these busy days. To have traced the after-histories of sixty-four patients several years after operation was a feat of which anyone might justly feel proud. It set an example which many operators might follow with benefit to themselves and to the profession at large. Happily for him (Mr. Butler-Smythe), it was not the part of the pupil to criticise the work of the teacher, and therefore he would only express his admiration of the straightforward manner in which those after-histories had been presented to the Society. The remarks made by the writer relative to the uselessness of what he might term "too recent" histories were most welcome, for he (Mr. Butler-Smythe) held decided views on this subject, and strongly deprecated the publishing of complete cases a few months after hysterectomy. If after-histories were to be of any use it was essential that a reasonable time should intervene between the date of operation and the time of reporting the patient's condition.

Mrs. Boyd expressed great appreciation of the time and trouble bestowed by Mr. Doran on the determination of these results. She suggested that in appraising the effect of operation in the production of menopause symptoms it was important to bear in mind how varying were the symptoms accompanying the natural menopause in different individuals. It might be that those patients who would have suffered at the natural menopause

suffered similarly at the artificially induced menopause, and *vice-versâ*. It was easy to make too much of menopause symptoms, and she had found that patients themselves did not attach great importance to them, regarding them as inevitable at some period of life. In twenty-two cases of supra-vaginal amputation with retention of one or both ovaries operated on up to the spring of 1904 she had investigated the after-results. In all but three the result was excellent, and in some cases striking as to the general health, and the three exceptions were in poor health before operation. In none were there really severe menopause symptoms, and in only one did a periodic sanguineous discharge persist. In that one she was not aware that she had left any endometrium, but she had noted that an inch and a half of cervix remained. In all the other cases amputation was at or below the internal os.

Dr. Herbert Spencer expressed his appreciation of the labour involved in obtaining the facts brought before them, but he felt bound to criticise several points in the paper. First, as to the title, "subtotal" hysterectomy was a horrid expression, and, moreover, was inapplicable to an operation in which the whole of the cervix and part of the body were left behind. Mr. Bland-Sutton had used the term to indicate the operation he performed of removing the body and part of the cervix. Unfortunately, Mr. Bland-Sutton had created confusion by speaking of the operation in one case as total hysterectomy, which it was not. Then with regard to the heading "After-histories" in the table, the after-histories were practically confined to three points—viz. the general health, the cessation of menstruation, and the occurrence of flushings. There were many other points which were very important in the after-history which were not mentioned in Mr. Doran's paper. A patient might be in good general health and yet suffer severely from various effects of the operation, and she might cease to menstruate and have flushings and yet scarcely suffer at all. With regard to the facts given in the paper, he must express surprise that Mr. Doran should have removed both ovaries in no less than twenty-eight out of sixty cases. Personally, he had always endeavoured to leave one or both ovaries in every case of hysterectomy for fibroids. Dr. Spencer thought it was proved beyond question that the retention of the ovaries was of value to the patient and was not followed immediately by flushings, whereas flushings usually occurred when the ovaries were removed. This, indeed, was very apparent in Mr. Doran's own paper. Dr. Spencer did not think that Mr. Doran's inferences as to the Abel-Zweifel theory were supported by his facts, and when the facts were directly opposed to the theory Mr. Doran had to rely on supposition that the endometrium left behind might have been diseased or damaged during the operation or destroyed in the course of cicatrisation of the stump. He directed Mr. Doran's attention to an important

recent publication by Dr. Raoul Graf, who stated ('Zeitschr. für Geb. und Gyn.,' lvi, Bd. i, Heft i, p. 103) that Zweifel's views were disproved by the researches of Grammatikati, Burger and Mandl, and Keitler. He thought the importance of flushings had been exaggerated; even if they did occur, it was not such a great matter to anticipate by a few years what was the common lot of women. He was sorry that he could not at present give the after-histories of his cases for comparison with the after-histories given in Mr. Doran's paper, but, as he had in every case endeavoured to leave one or both ovaries behind, he had no doubt that they would compare favourably with regard to the occurrence of flushings with Mr. Doran's cases, in nearly half of which both ovaries had been removed. One case, however, was sufficient to disprove the statement that "it is essential to preserve a portion of the endometrium." He had two days ago seen a case in which he had performed total abdominal hysterectomy seven years previously for cancer and fibroids in a woman aged 36, one ovary being left behind. The patient had no flushings nor other symptoms of the menopause for six years after the operation, and then the symptoms were slight. He remained of the opinion that total hysterectomy was greatly superior to the partial operation. It had been objected that the mortality of the total operation was higher, and Dr. Cullingworth had, in the last volume of the 'Transactions,' given statistics, dated 1897, in which this appeared to be so. Dr. Cullingworth had an open mind, and therefore Dr. Spencer would direct his attention to some later and more extensive statistics (Saenger and Herff, 'Encyclopædia der Geb. und Gyn.,' 1900), showing that the mortality of the total operation (8·27 per cent.) was actually less than that of the partial operation (8·64 per cent.), and it should be borne in mind that total hysterectomy has to be done, even by the advocates of the partial operation, in some of the most dangerous cases, such as those of large cervical fibroids.

Dr. Heywood Smith said they might eliminate that part of Mr. Alban Doran's paper that had reference to the condition of the uterus, while agreeing with his dictum that fibroids that were small and gave rise to no symptoms might be left alone, though they should be watched lest any altered condition should give rise to the necessity for fresh measures. But he wished to draw attention to the question of how the patient was affected by the removal of one or both ovaries or by the retention of both. One case was remarkable inasmuch as the excessive hæmorrhage was lessened after the removal of only one ovary. With regard to the contention of Mr. Doran that the leaving of a portion of the uterus, and so of the endometrium, was beneficial, they might remember that Lawson Tait considered that the menstrual flow was connected chiefly with the oviducts, the lining of which was continuous with the endometrium, an

observation that might have something analogous with what Mr. Doran had stated. What they wanted to investigate was the natural history of menstruation. In most of the vertebrata the organs for the elimination of the sperm and germ-cells respectively were duplicated. Was this to guard against disease or accident interfering with the propagation of the species, or was it for another purpose? Nearly twenty years ago a Committee was appointed by another Society for the study of menstruation, but that Committee failed to present a report; might they not hope that, when the Royal Society of Medicine came into being, medical men and women might be induced to return to this investigation and throw some valuable light on this most important subject?

Dr. Griffith wished to join in thanking Mr. Doran for his contribution to a difficult question. He thought that the value of the paper would have been much increased had Mr. Doran clearly stated what meaning he attached to the term "menopause," which appeared in some parts of the paper to refer to the cessation of menstrual flow, and in others to the cessation of hæmorrhages not clearly shown to be menstrual, as well as to the occurrence of flushings. It is clear that a definition of "menopause" involves a similar definition of menstruation, which necessitates a far wider view than that implied only by the one phenomenon of the flow of blood. The absence of certainty detracted much from the value of the arguments used in this paper. Dr. Griffith altogether disagreed with Mr. Doran in his statement that the preservation of the ovaries in the operation of hysterectomy "is never justifiable when cystic or inflammatory disease is present," a statement which Mr. Doran would certainly not have made had he been writing from the point of view of the diseases of the ovary. It was of the utmost importance that men having the authority that Mr. Doran had with regard to ovarian disease should refrain from such untrue and exaggerated statements, which were likely to encourage those surgeons whose greed for operating led them to perform operations which were believed to be unjustifiable and which met with the strongest disapproval of all competent judges.

Mr. Malcolm wished to join in thanking Mr. Doran for the great amount of labour he had put into the preparation of his paper. He, however, sympathised with Mrs. Boyd's remarks on the variation of severity of the menopause in women generally, and thought that further evidence on this matter was desirable. The worst cases of climacteric symptoms in his practice had occurred in a girl aged 23, from whom two dermoids, very adherent from twisting of one pedicle, had been removed, and in a woman aged 54, from whom a very hard calcareous uterine tumour was taken four years after the periods ceased. This last patient made a complete recovery, except that she had

a constant and distressing skin condition, which in a younger woman would certainly have been attributed to the change of life. Again, as regarded removal of both ovaries, the effects were extremely variable. As to insanity following major operations, he had seen it on several occasions, but the patients had been of bad family history, or had already shown symptoms of personal affliction before. Although Mr. Doran had brought together definite information which was always valuable, the speaker did not feel persuaded that he should alter his practice, to which he had been guided chiefly by the smoothness of immediate convalescence obtained by complete removal of the uterus. This operation was, however, undoubtedly more difficult than that by which the cervix was left in the body.

In reply, Mr. Alban Doran agreed with the President that a "sensible time" should be allowed to elapse before a hysterectomy for fibroid be reckoned as a cure. He was also of accord with those who held that, since physiologists were not settled as to what was precisely signified by "menstruation," it was not possible to determine exactly what was meant by "menopause symptoms." Still, the expressions "no symptoms," "moderate symptoms," and "severe symptoms," employed in his records appeared easy to understand. Dr. Herbert Spencer and Mr. Malcolm advocated panhysterectomy, which had its advantages, but chiefly in relation to operative manœuvres and results. Mr. Doran's researches were intended to throw light on the distant effects of the sub-total operation, and he had already stated that an analysis of sixty cases of panhysterectomy would be of high interest for purposes of comparison with his own series. We must remember that, according to a recent discussion before the Société de Chirurgie de Paris, panhysterectomy had been rejected by several eminent authorities who recently practised it. There were advantages in sparing the cervix, and Mr. Doran's records seemed to show that it was good to leave a piece of endometrium as well. He did not hold a brief for the Abel-Zweifel theory; perhaps it represented right reasoning on wrong premises. Mr. Doran and Mr. Bland-Sutton had adopted the term "subtotal" in conformity with many foreign writers, "supra-cervical" being palpably inaccurate, since, as in his own series, the line of amputation was not invariably above the os internum. Mr. Doran always avoided the removal of both ovaries if possible, as could be seen in the analysis of his tables, but he had known of very bad results where inflamed appendages had been left behind, and it was not always easy to distinguish between dropsical follicles and incipient cystic tumours. Lastly, he considered that insanity was sometimes a true menopause symptom, whilst he doubted if psychologists would ever admit that mental derangement in middle-aged women was invariably due to the cessation of the catamenia.

DECEMBER 6TH, 1905.

W. R. DAKIN, M.D., President, in the Chair.

Present—42 Fellows and 1 visitor.

Books were presented by Mr. W. Heape, Dr. Schultze, Gesellschaft für Natur- und Heilkunde in Dresden, and the Clinical Society.

Robert James Blackham, Capt. R.A.M.C. (Stoke, Devonport), was declared admitted.

Lewis Augustus Clutterbuck, M.B.Durh., M.R.C.P. Lond., and Hugh Stevenson Davidson, M.B., Ch.B.Edin. (Melrose) were proposed for election.

Report of the Pathology Committee on Mrs. Scharlieb's Specimen (with microscopic Sections) of Endothelioma of the Body of the Uterus (*see p.* 281).

WE have examined this specimen and microscopic sections thereof, and agree that it is a spindle-celled sarcoma, which in part has a well-marked alveolar arrangement. The microscopic sections do not present conclusive evidence that the growth is of endothelial origin.

Report of the Pathology Committee on Dr. W. H. Tate's Specimen (with microscopic Sections) of Fibromyoma of Uterus associated with a large Cavity containing retained Menses communicating with the Uterine Canal (*see p.* 360).

We have examined this specimen and microscopic sections thereof, and agree that that part of the specimen which contains the cavity is a fibromyoma attached to the cervix. The microscopic sections show hyaline degeneration, which we believe accounts both for the formation of the cavity and the communication with the cervical canal.

Report of the Pathology Committee on Dr. W. H. Tate's Specimen of Degenerating Fibromyoma and Sarcoma of Uterus (*see p.* 358).

We have examined this specimen and the microscopic section thereof, and are unable to express a definite opinion until fresh microscopic sections are prepared (see also Report below).

C. Hubert Roberts.
G. Bellingham Smith.
Herbert. R. Spencer.
Walter W. H. Tate.
Herbert Williamson.
Corrie Keep.
W. S. A. Griffith.

Adjourned Report of the Pathology Committee on Dr. W. H. Tate's Specimen (with microscopic Sections) of degenerating Fibromyoma and Sarcoma of Uterus (*see p* 358).

We have examined this specimen and the microscopic sections thereof, and agree that it exhibits great difficul-

ties in interpreting its histological characters from the different appearances presented by the degrees of degeneration present. The greater part presents the appearance of a degenerate fibromyoma. The encapsuled friable portion lying between the bladder and cervix, described as a "spindle-celled sarcoma" by the exhibitor, consists of areas of extreme degeneration in which occasional single muscle-fibres can be seen; between these areas of degeneration are islets of well-preserved muscular and connective tissue freely infiltrated with leucocytes. In the centre of each islet is a well-formed blood-vessel. We do not find any definite evidence of sarcomatous change.

C. Hubert Roberts.
Thomas G. Stevens.
Walter Tate.
Corrie Keep.
W. S. A. Griffith, *Chairman*.

REPEATED TUBAL GESTATION; REMOVAL OF UNRUPTURED TUBE; RECOVERY.

By W. Gifford Nash, F.R.C.S.

These specimens were removed from a strong, healthy lady, who had never had any serious illness. She married on June 1st, 1898, at the age of 24, and had two children born, on March 27th, 1899, and October 28th, 1900. Both confinements were quite natural, and since the last there was no history of uterine or pelvic disease. The periods were regular, painless, and lasted a week.

History of the first extra-uterine gestation.—A natural period ended on August 3rd, 1903. As the September period did not appear, she took strong aperients and hard exercise. On September 7th uterine hæmorrhage came

on, and continued until the 10th, when pain, vomiting, and faintness occurred. I saw her and thought the symptoms were due to an abortion, aggravated by the attempts to induce it. On September 16th a membranous cast of the uterus was passed, which I took to be the decidua of a uterine conception. Hæmorrhage ceased on September 18th, but came on again on September 21st, the correct date for a period. Pain was present on the left side of the pelvis, but nothing was made out beyond some tenderness in the left fornix.

At 2 a.m. on September 26th I was sent for, as the patient was in pain and had been sick and faint. The pulse was 72. There was fulness behind and to the left of the uterus. Rectal tenesmus was complained of. I arranged to remove the patient to a nursing home, but on visiting her at 10.30 a.m. I found her in a state of collapse. An hour later I opened the abdomen and found it full of blood, which came from a large tear in the left Fallopian tube. The left ovary and tube were removed, the blood cleared out, and the abdomen closed. About the middle of the Fallopian tube was the gestation sac, the walls of which were widely torn. The patient quickly recovered, and remained well until September, 1905.

History of the second attack.—On August 15th, 1905, a natural period ended and all went well until September 23rd, when the patient had pain in the right side of the pelvis and felt faint.

On September 27th, the forty-third day, she began to lose blood, and an abortion seemed imminent. On October 2nd, the forty-eighth day, she passed the uterine decidua, and the nature of this made me suspect an extra-uterine gestation.

On October 5th, on vaginal examination, no lump or tenderness could be made out.

On October 6th there was rectal tenesmus.

On October 7th, the fifty-third day, a tender lump could be detected behind the uterus, and there was marked tenderness in the right fornix. The same day

I opened the abdomen and found about a teaspoonful of blood in the pelvis. The right tube was found to contain an oval swelling near its middle. The ovary, which was enlarged, lay in Douglas's pouch. The tube and ovary were removed. The patient made a rapid recovery.

Description of specimen.—The parts removed consisted of the right Fallopian tube and ovary. The tube, at about its middle, was dilated to the size of a pigeon's egg. The swelling had not ruptured. On cutting open the tube, after hardening it in a formalin solution, the dilated portion was found to contain a mass of blood-clot, and in this, near the distal end, was the fœtus. Imbedded in the clot were villous shreds, which, on microscopical examination by Dr. Major, proved to be chorionic villi.

Remarks.—This case is chiefly of interest because it presents an example of repeated extra-uterine gestation in an apparently healthy and fertile young woman. The symptoms on each occasion were very similar. They were a missed period, pain in the pelvis, vomiting, faintness, uterine hæmorrhage, rectal tenesmus, and the passage of decidua. The dates of occurrence of the chief symptoms in the two attacks corresponded very closely. In the first attack hæmorrhage began on the thirty-fifth day, and in the second on the forty-third. The decidua was passed on the forty-fourth and forty-eighth days; the operation took place on the fifty-fourth and fifty-third days. The only other point which I wish to refer to is the passage of the uterine decidua. On each occasion a very perfect cast of the uterus was passed before rupture occurred, and I would like to hear the opinion of the Fellows as to the diagnostic value of uterine casts. Supposing that, at the end of eight weeks in a uterine pregnancy, the ovum is cast off with its membranes unruptured and the uterine decidua is subsequently passed as an entire membrane, can this decidual cast be distinguished from that passed in a case of extra-uterine gestation, even when it is examined microscopically ?

I am aware of the three cases reported by Drs. Griffith,

Eden, and Dakin in the 'Transactions,' in which a decidual cast was passed without extra-uterine gestation being present, in two of which the patients were submitted to operation. These cases show that the passage of a decidual cast, without other symptoms, is not proof of the presence of an extra-uterine gestation.

Dr. CULLINGWORTH welcomed this communication on the ground that every case of repeated tubal gestation should, for the present, be placed on record. He regarded the passing of a decidual cast from the uterus in a patient with tubal gestation as evidence that the ovum was dead. The occurrence might precede *rupture*, as it had done in Mr. Nash's patient, but it would probably never be found to precede symptoms pointing to hæmorrhage into or around the ovum—in other words, to threatened or actual tubal abortion. With reference to the diagnostic value of the passing of a decidual cast, he considered that the cases, extremely few in number, in which a cast had been expelled and yet tubal gestation had been proved not to exist had done very little to diminish the importance of the phenomenon as helping to clinch the diagnosis in a doubtful case. They had simply shown that the evidence was not absolutely infallible.

THE PRESENCE OF SARCOMATOUS TISSUE IN THE WALLS OF OVARIAN CYSTS.

By FRANK E. TAYLOR, M.B., B.S., F.R.C.S.

THE more careful study of their histological structure to which ovarian cystomata have been subjected within recent years has established the fact that their malignant nature is much more frequent than was formerly believed. A large number of observations have now been recorded since Klebs (1) and Olshausen (2) first drew attention to this condition. "Towards the menopause," says Mr. Alban Doran (3), "cystic sarcoma and cystic adeno-sarcoma are frequent."

When an ovarian cystoma undergoes changes which eventuate in malignant disease we are confronted most

frequently with a carcinomatous transformation. The mere possibility of such a change being of a sarcomatous nature is scarcely mentioned even in the classical monographs on diseases of the ovary. It seems as if attention has hitherto been focussed exclusively on the epithelial constituents of ovarian cysts to the exclusion of any changes which the supporting stroma may undergo.

Now, an ovarian tumour which is at once cystic and sarcomatous may have arisen in one of two ways. On the one hand, a sarcomatous neoplasm, originally solid, may have outgrown its nutritional supply, which causes its central portion to break down, soften, become diffluent, and form a cyst-like cavity within its substance. On the other hand, a simple cystic tumour, such as a cystadenoma or a dermoid cyst, may develop sarcomatous tissue in its walls, such sarcomatous tissue having arisen from the atypical proliferation of its connective-tissue elements. In the first class of cases the cystic formation is merely an accidental occurrence in the growth of a solid sarcoma and the cystic cavity is lined by necrotic sarcomatous tissue. "Cystic sarcoma" is the term best indicative of this condition. In the latter variety where sarcomatous tissue develops in the wall of a cystoma, a mixed tumour or a combined tumour is produced, best designated "cysto-sarcoma." This sarcomatous tissue may develop either in an adeno-cystoma or in a dermoid cyst, when the former may be termed "adeno-cystoma sarcomatodes" in conformity with the term "adeno-cystoma carcinomatodes" applied by the German writers to the much more common condition the development of carcinomatous tissue in an adeno-cystoma.

The development of sarcomatous and carcinomatous tissue in the walls of ovarian cysts, both adenomatous and dermoid, constitutes what has sometimes been erroneously termed "malignant degeneration of ovarian cysts," and is probably a more common occurrence than is usually believed. So far as I am aware, no criteria are available for the determination of the frequency of this condition.

Many of the cases of recurrence and metastasis-formation following ovariotomy for so-called benign ovarian cysts, as recorded by Olshausen (4), Winternitz (5), Baumgarten (6), Schlegtendahl (7), and others, probably belong to this category.

The frequency could, I think, only be established by submitting to microscopic examination all ovarian cysts, however simple they may appear to the naked eye, and by the careful record of the after-histories of ovariotomies, so that the proportion which developed malignant metastasis and recurrences might be determined.

Cohn (8), however, among 600 ovariotomies performed by Schröder, found 100 cases—*i. e.* 16·6 per cent. of malignant disease, and Leopold (9) found 26 malignant tumours—*i. e.* 22·4 per cent., among 110 completed ovariotomies, and 6 exploratory laparotomies.

In this connection also, it is a striking fact, as I have elsewhere stated, "that the late Spencer Wells found that malignant disease contributed 36 per cent. to the known causes of death in patients who had recovered from the operation of removal of one or both ovaries. Mr. Roger Williams (10), who pointed out this fact, examined the records of the after-histories of 1000 completed ovariotomies performed by Sir Spencer Wells, and he put the matter very forcibly when he stated that he found "that of those who recovered after completed ovariotomy, 117 have since died, the cause of death being unknown in 29; of the remaining 88 no less than 32 had succumbed to malignant disease, or 1 in 2·75. During the same period I have ascertained that the cancer mortality in the general population among women of the same age is 1 in 15. Thus the cancer mortality was nearly five and a half times greater for those who had undergone no such operation. Moreover the proportion of cancer deaths was much greater among those who had undergone double ovariotomy than in those submitted to the unilateral operation."

Two cases of adeno-cystoma ovarii sarcomatodes have come under my own observation.

The first has already been brought before the notice of this Society by Dr. Inglis Parsons (11), under the title of "An Unusual Case of Sarcoma of the Ovary." He performed ovariotomy on a woman aged 33, and removed what seemed to be a large multilocular ovarian cyst-adenoma, in which the walls contained a thick, fleshy plaque half an inch thick. Twenty-seven days later the patient was dead from extensive peritoneal recurrence. Both the thickened plaque and the peritoneal metastases showed the histological structure of a mixed-celled sarcoma.

The second case I have seen is that which I am now able to record by the kindness of Dr. T. W. Eden:

E. S—, a married woman, aged 62, was admitted into the Chelsea Hospital for Women on October 10th, 1905, under the care of Dr. Eden. She complained of abdominal enlargement and pain, uterine hæmorrhage, and frequent micturition. She had had three children, the last twenty-five years ago, and three miscarriages.

The abdominal enlargement was first noticed in May, 1905, six months before admission. The enlargement was thus a very rapid one. The menopause occurred at the age of 51. For the last four years there had been an almost continuous hæmorrhagic discharge, which commenced without any obvious cause. Three years ago the patient underwent an operation for this symptom in another London hospital. The operation is said to have consisted of curettage, with the removal of a uterine polypus. In spite of the operation, the hæmorrhage persisted. No pelvic tumour seems to have existed, or at least none was discovered, at that date. There was no disturbance of the urinary functions until June, 1905, when catheterisation was necessary. Since then there has been pollakiuria.

On examination the heart and lungs were normal; there was some general arteriosclerosis without signs of cardiac enlargement. Abdominal examination revealed the presence of a large swelling which occupied the greater part of the abdomen, and was most marked below

the umbilicus. It was of soft consistence: fluctuation was elicited. There was a fluid thrill over the tumour. No definite edge could be felt. The umbilicus was not flattened out. There was dulness on percussion on both sides of the middle line, becoming more resonant in the left flank. The right flank was quite dull. There was no shifting dulness on rolling the patient over on to her side. There were no enlarged veins in the abdominal parietes. The greatest girth measured 35½ inches.

On vaginal examination a soft swelling was felt continuous with the abdominal tumour. It lay in front of the uterus, which was not enlarged. Some external hæmorrhoids were also observed.

On October 17th ether was administered and Dr. Eden opened the abdomen through a median subumbilical incision. The presence or absence of ascites was not noted. A large multilocular cyst immediately presented. It extended upwards to the diaphragm and the under surface of the liver, which was shrunken and contracted. A broad pedicle attached the tumour to the right side of the uterus. The left ovary was examined; it appeared to be normal and was not removed. The abdominal incision was sutured in three layers without drainage. Convalescence was uneventful save for a slight attack of post-operative hæmatemesis in the shape of a little coffee-ground vomiting, which subsided in one day. The patient left the hospital in good health, without any sign of recurrence, on November 7th.

Pathological report.—The tumour after removal was found to be a large collapsed multilocular cystoma of the right ovary. It had contained six pints of clear colourless serous fluid. The cyst-walls were everywhere smooth and glistening and of a greyish-white colour, nothing in the nature of papillomatous growths being present. The major portion of the cyst-wall was thin and membranous. In one part, however, there was a plaque-like thickening eight inches in diameter, with a maximum thickness of one inch. It became gradually thinner towards the

circumference, its edges gradually shelving off into the surrounding thin membranous portion of the cyst-wall. The Fallopian tube and the mesosalpinx took origin from this thickened plaque. The substance of this plaque on section was pale pink in colour, fleshy and homogeneous in appearance. It seemed to be surrounded by a thin, fibrous capsule which could readily be peeled off. It was also very friable, its fracture suggesting to the naked eye the appearance of organising fibrin, and this appearance gave rise, before the histological examination was made, to the belief that the thickening might be the result of an old hæmorrhage into the wall of the cyst.

Microscopically this thickened tissue is composed of large, round, and oval spindle-cells, sarcomatous in nature. In places the cells are closely packed, in others they form a network of fine columns in a loose connective tissue, and in others, again, they were disposed round well-formed blood-vessels as if the growth had taken origin from the connective tissues of the tunica intima of these vessels.

Both these cases, it will be seen, are instances of the development of sarcomatous elements in the shape of thickened plaques of solid tissue in the walls of multilocular ovarian cystadenomata. It is a decidedly rare condition, or at least it is a condition rarely recognised, the only other records of such cases being those of Eden (12), Fairbairn (13) (two cases), Alcock (14), Cullen (15), Elder (16), Durbar (17), Pfannenstiel (18) (two cases), Boeckel (19), Friedländer (20), Fischel (21), Simoff (22), Potocki and Bender (23), and Abadie and Bender (24). If to these fifteen cases the two here recorded be added, we have a total of seventeen such cases. The development of carcinomatous tissue in the walls of multilocular ovarian cystadenomata, as I have already stated, is a much more frequent occurrence. I have elsewhere (25) recorded an instance of this condition. Least frequent of all is the coincident development of sarcoma and carcinoma in

such cystadenomata, two only, those of Pfannenstiel and Simoff, being on record.

Sarcomatous tissue, however, frequently develops in dermoid cystomata; examples of this condition are recorded by Knowsley Thornton (26), Flaischlen (27), Cohn (28), Geyer (29), Biermann (30), Unverricht (31), Busse (32), and others.

Clinically it would seem that much divergence in symptomatology characterises this development of sarcomatous tissue in multilocular ovarian cystadenomata.

The *age* of the patients when submitted to ovariotomy has varied from 33 to 62 years.

The *clinical history* permits of division of the cases into two groups. In one group the signs and symptoms are those of a benign ovarian cyst, and the malignant nature of the growth has only been ascertained by careful macroscopic and histological examination of the cyst after removal, or by subsequent recurrence, or by the formation of peritoneal metastases. In the other group the signs and symptoms of an ovarian cyst have existed for some time, and the sarcomatous change has been indicated by the onset of abdominal pain, rapid growth of the tumour, emaciation, and the development of cachexia. In some cases ascites and irregular masses of unequal consistence have developed in a tumour previously smooth and regular.

As regards the *appearance* of these sarcomatous cysts when removed, Mr. Doran (33) contrasts them with benign cysts, and states that "the surface of an innocent ovarian growth, free from inflammation, is smooth, regular, shiny, and silvery-white. Its vessels appear small, well-defined, and red or light-blue in colour. The surface of a malignant cyst is usually dull, irregularly tinted with dirty-white, blue, and green. Its vessels are big, dark, and unhealthy-looking, as its circulation is faulty. In an innocent cystic adenoma the outer wall may appear of a dull-green colour, and gelatinous, and usually bears large vessels, but the colour is uniform, and the vessels, though dilated, look healthy." Although this may be true of some

cases, the differentiation is often not so easy, as in my own cases and in several of those recorded, such, *e. g.*, as that of Cullen; for in these the true nature of the growth could only be ascertained after careful histological examination.

The sarcomatous tissue may be present in the walls of cysts which otherwise look innocent, in the form of plaque-like solid thickenings, as in my own cases, as irregular nodosities, as in Cullen's and Fairbairn's cases, or as sessile or polypoid solid growths springing from the cyst-wall, as in Eden's case.

It would seem, therefore, that Dr. Brewis (35) is more correct when he states that " after the abdomen is opened it is easy in many cases to diagnose by well-known physical signs malignant degeneration of an ovarian tumour, yet in many cases to do so is impossible."

The question of *recurrence and metastasis-formation* is also a matter of great practical importance. In the cysto-carcinomata these are very common and are not confined to the peritoneum, but are often found in the substance of various organs, especially the liver. In cysto-sarcomata they are rare and confined to the peritoneum alone. Such metastases were present in the cases recorded by Friedländer, Simoff, Boeckel, and Dunbar. Simoff's case is of particular interest. In the cyst-wall the sarcomatous was combined with carcinomatous tissue, and both these elements formed metastases. The sarcomatous metastatic growths were confined to the peritoneum, whilst the carcinomatous metastases were found only in the liver and other organs.

Recurrence usually follows ovariotomy for adeno-cystoma sarcomatodes within a very short time, and is singularly confined to the peritoneum. It grows with fearful rapidity, and usually causes death within a few weeks, or at most months, after the performance of ovariotomy.

The development of sarcomatous tissue in the walls of adenomatous ovarian cysts thus seems to produce a form of malignant disease characterised by a very high degree of virulence.

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FIBROMA OF THE OVARY WEIGHING SEVENTEEN POUNDS; UNDER OBSERVATION FOR TEN YEARS.

Shown by Alban Doran, F.R.C.S.

Mrs. H—, aged 56, married twenty-two years, was seen by me in consultation with Dr. H. F. Harvey, of Perth, Western Australia, on November 4th, 1905, on account of extreme enlargement of the abdomen.

Over ten years ago she noticed a lump of the size of her fist in the left flank, but took little notice of it. The abdomen soon began to swell, and she attributed the enlargement to corpulence. She put herself under the care of a physician in the West of England, who watched her for many years, and suspected that there was a fibroid tumour, but did not urge an operation. Recently it had grown much larger, yet her health was hardly impaired.

The patient appeared to me as though in excellent health, but there was great abdominal enlargement, preventing her from walking. The abdominal walls were œdematous, the cutaneous veins not conspicuously dilated. A solid, much lobulated tumour reached from the pubes to the epigastrium; it was freely movable, and there was evidently much fluid in the peritoneum. The measurements were: Girth at umbilical level, 52½ inches; ensiform cartilage to umbilicus, 13½ inches; umbilicus to symphysis pubis, 12 inches; right anterior superior spine of ilium to umbilicus, 12 inches; left spine to umbilicus, 12½ inches.

The uterus was small and the fornices free; it did not move with the tumour except when the latter was pushed downwards. The legs were slightly œdematous.

The appetite was good, the tongue clean, not raw; the bowels acted well. The urine was of high specific gravity and loaded with urates.

The patient had been pregnant five times, aborting twice; her last pregnancy ended normally at term eighteen years ago. The period ceased entirely five years ago. It used to be regular, and was never very free. There was no history of illnesses, excepting a severe attack of influenza six years since, and two milder seizures, the last about December, 1904.

The history of the present illness indicated pedunculated subserous uterine fibroid, but the presence of ascites suggested fibroma of the ovary. Before the patient was under an anæsthetic I considered that uterine fibroid was the more probable. When the patient was under chloroform, however, the tumour felt more like an ovarian than a uterine new growth.

Two days later a great quantity of serum issued from an abrasion of the skin of the abdomen. A similar discharge of serum had occurred in September. This alarmed the patient, and she begged for the speedy removal of the tumour.

I operated on November 7th at a nursing home, Mr. Butler-Smythe assisting, Mr. Arthur Morley administering chloroform.

The operation.—The incision through the abdominal walls had to be extended for several inches above the umbilicus, which included a small hernial pouch plugged with omentum. About four pints of ascitic fluid came away, and then a large solid tumour was exposed. There were three broad omental adhesions, one closely uniting the hepatic flexure of the colon to the tumour. In separating these adhesions much omentum was resected, as its large veins bled very freely and required careful ligature.

The tumour was then delivered; it was connected with the right cornu of the uterus by a very broad and short pedicle consisting of a healthy Fallopian tube, a much stretched mesosalpinx, and, along the outer border, enormously dilated ovarian vessels. As is almost invariably the case, the fibroma had not burrowed to the

slightest extent between the folds of the broad ligament. There was some trouble with the pedicle owing to its breadth and tenseness; I applied a ligature to its outer border, made fast as I divided it; then I clamped the uterine side of the pedicle, divided it, and transfixed and tied the whole pedicle. Thus I avoided any splitting of the pedicle. The uterus was small and flat, the left ovary reduced to a rough patch of tissue behind the left broad ligament. Before closing the abdominal wound I excised the umbilical sac. I could not find a single trace of the new growth beyond the limits of the ovary.

The patient made a speedy recovery and returned at the end of November to her home in the West of England.

The tumour.—The most striking feature about the growth, when superficially examined, is its great weight. When recent it weighed a little over 17 lb. It is irregularly ovoid in shape, deeply lobulated above, much more uniform and smooth on the surface below. Its vertical measurement is 10 inches, its greatest transverse measurement 7½ inches; antero-posteriorly it attains 7 inches near its base. Its outer surface is dull-white, with very large veins. Its substance is firm, gritty at certain points. On section, its surface shows the usual "desmoid" appearance seen in the purer forms of fibroma, and some irregular cavities containing broken-down tissue. There are also some venous sinuses, one of great extent, 2 inches long at the level of section and over 1 inch broad; two large vessels can be seen opening into it. The relations of the Fallopian tube and mesosalpinx have been described above.

Microscopic appearances. — I exhibit this evening a section from the softest part of the tumour which was not degenerate. It will be seen that the section shows all the characters of a pure fibroma.

Dr. Cuthbert Lockyer, who has inspected the specimen very carefully, has kindly prepared the following report:

"The tumour forms a large, oval, solid mass, measuring 10 inches in its long diameter and 7½ inches in

its shorter diameter. Externally it presents a lobulated surface, the lobes being divided by shallow sulci. Large congested veins traverse the external surface. On cut-section the centre of the solid mass is seen to be very œdematous, clear fluid oozing therefrom. The œdematous tissue has given way in places; this has resulted in the formation of cystic spaces. The capsule investing the tumour is, for the most part, very thin and tissue-paper like; over one area, however, it is thicker, and in endeavouring to separate it the fibrous growth adheres to, and comes away with the capsule. One of the lobes shows many injected areas on section. The stained areas run along under the capsule, and spread from there into the interior of the lobe. Microscopically, the tumour proves to be a fibroma; there is no evidence of malignancy in its structure.

"(*Signed*) CUTHBERT LOCKYER."

The tumour comes under Fairbairn's first class, where the whole ovary is converted into a hard tumour "maintaining to some degree its original shape, but leaving no recognisable portion of its original structure."*

This case is mainly of interest in respect to diagnosis. Under certain circumstances it is not easy to distinguish between a pedunculated fibromyoma much larger than the uterus from which it springs and a fibroma of the ovary with a short, broad pedicle.

In 1896 I exhibited before this Society a cystic myoma weighing over 15 lb.† I noted that "the uterus was to a certain extent movable, but did not move when the tumour was pushed sideways. . . . It was found to arise from the pelvis by a very thick and long pedicle, which was simply the cervix and lower part of the uterus greatly elongated." Tumour of the liver was suspected; at the

* "Five Specimens of Fibroid Tumour of the Ovary, with Observations on their Pathological Anatomy." 'Obst. Soc. Trans.,' vol. xliv (1892), p. 207.

† 'Obst. Soc. Trans.,' vol. xxxviii, p. 164.

operation I found that it adhered to the parietes near the liver. As in the present case, the patient was elderly (forty-nine), so that the uterus was rather atrophied.

In another case I operated, removing a large pedunculated fibroid, where the body of the uterus was really part of the pedicle. On the other hand, in more than one case of fibroma of the ovary in my own operative practice all movements of the tumour were communicated to the uterus, the pedicle being very short and broad.

The presence of ascites favours the diagnosis of fibroma of the ovary, as it is not rarely found in association with that type of tumour. But it is occasionally observed in cases of fibromyoma of the uterus as well; in one instance in my own operative experience * I discovered intimate adhesion of omentum, just as in the present case of fibroma of the ovary.

Lastly, be it observed, this tumour of the right ovary seems to have rolled forward and to the opposite side many years before it was removed, a change of position which appears to be not uncommon when the ovarian growth is heavy yet not adherent.

Dr. Peter Horrocks spoke of the difficulty in distinguishing between a fibroma and a sarcoma of the ovary, and pointed out how equally expert histologists would differ in their opinions of a microscopical section. Considering that in this case the patient was known to have had the tumour for ten years and that it had only recently begun to grow and be accompanied by ascites, did it not raise the important question as to whether a simple innocent fibroma might not become affected by sarcomatous change?

Mr. Alban Doran, in reply to Dr. Horrocks, reminded the Society of his contribution on "Fibroma of the Ovary and Ovarian Ligament," read in 1896, where he noted that innocent fibromata often bore connective-tissue elements which had been mistaken for sarcoma tissue, but the after-histories proved that those elements did not denote malignancy. The opposite error of mistaking a solid malignant tumour of the ovary for a fibroma was much less frequent.

* "The Harveian Lectures on Fibroids of the Uterus and its Ligaments," Lecture II, 'Lancet,' vol. i, 1903, p. 415.

FIBROMYOMA REMOVED BY ABDOMINAL MYOMECTOMY IN SECOND MONTH OF PREGNANCY; LABOUR AT TERM.

Shown by Alban Doran, F.R.C.S.

A full report of this case will be found in a recent number of the 'Journal of Obstetrics and Gynæcology,' as part of an article on operations for the removal of solid ovarian and uterine tumours during pregnancy without interruption of that process.* The specimen is now brought forward for inspection.

The patient, aged 28, was pregnant for the first time; the last period ended on October 14th, 1904. By December the cervix was pushed to the right by a firm convex mass which occupied the whole of the left half of the pelvis considerably below the level of the brim. There was no difficulty about diagnosis. I operated on December 29th. The tumour was a fibromyoma 2 lb. 2 oz. in weight, continuous with the back and fundus of the uterus. The area of junction was about 3 inches by 1 inch in diameter; in fact, it was a sessile, subserous fibromyoma. I made an incision round the capsule one inch from the uterus, enucleating the tumour. The muscular layer of the capsule was united with continuous catgut suture after the ligature of a big artery. The serous coat, very thick, was closed with catgut Lembert suture.

The patient was delivered of a healthy female child on July 23rd, 1905. Labour lasted thirty-six hours, owing to great excess of liquor amnii. Dr. Ross, of Westcliff-on-Sea, found much difficulty in making out the presentation, apparently breech. The uterus was very irritable, contracting directly it was touched, so that turning was impracticable. When the os was fully dilated the mem-

* "A Myomectomy and an Ovariotomy for Fibroma during Pregnancy; Labour at Term in both Cases." 'Journ. Obstet. and Gyn. Brit. Empire,' vol. viii, p. 297 (November, 1905).

branes were ruptured, and both feet came down at once. The case was left for a while to Nature until the breech was born, and then the child was delivered quickly. It was living, well developed, and 7 lb. in weight. Involution of the uterus proceeded quite normally.

I have already exhibited before the Society four specimens of pregnant fibroid uteri removed during operation,* hysterectomy being, in my opinion, the safest course. All the patients recovered. When removing this tumour I found that it was possible to save the gravid uterus, although the fibroid was sessile, and, I may add, held down by deep adhesions to the back of the broad ligament.

The history of the complicated labour deserves consideration. It would be interesting to determine the precise relation between the complications and the cicatrix in the uterine wall. The abdominal cicatrix, which became deeply pigmented before term, appeared quite strong.

Mrs. Boyd mentioned that she had performed myomectomy upon two patients not, certainly, pregnant at the time, but who afterwards became so, went to term, and passed through normal labours without any special difficulty.

Dr. Ethel Vaughan mentioned two cases of myomectomy from the pregnant uterus which had been performed at the Royal Free Hospital within the last two years; the one was a woman pregnant four months, with a large subperitoneal fibroid and a dermoid cyst of which the pedicle was twisted; the other patient was three and a half months pregnant, and had a necrobiotic fibroid in the pouch of Douglas. Both women went to term and were delivered of living children.

Mr. Doran, in reply, had listened with interest to the evidence which the surgeons to the New Hospital for Women had brought forward showing that the cicatrix in the tissue of the pregnant uterus after myomectomy did not yield during labour nor influence that process unfavourably. Much must depend, however, on the stage of pregnancy when the operation was performed and the nature of the connection of the fibromyoma with the adjacent uterine walls. Mr. Doran was also interested in the President's opinion that the hydramnion and breech or footling presentation in his case of myomectomy could not be clearly attributed to the operation or to changes in the uterine cicatrix.

* 'Obst. Soc. Trans.,' vol. xliii, 1901, p. 178, and vol. xlvi, p. 119.

CO-EXISTENT INTRA- AND EXTRA-UTERINE PREGNANCY.

By Dr. Hey Groves.

Dr. Hey Groves showed a specimen of early tubal pregnancy. The gestation sac was about half an inch in diameter, and close to the uterine attachment of the tube. It was removed from a woman of 35, five weeks after her last regular period. The tube showed a minute rupture on its peritoneal surface. The uterus was enlarged at the time of the operation, and subsequent events showed it to be the seat of a normal intra-uterine pregnancy, which pursued a natural course, uninterrupted by the operation.

Mrs. Boyd said that she had in 1901 read before the Gynæcological Section of the British Medical Association a case where she removed the right appendages for a tubal gestation in the third month of intra-uterine pregnancy, the patient going on to term and being confined of a living child ('British Medical Journal,' vol. ii, p. 962).

INTRODUCTION TO A DISCUSSION ON VENTRAL FIXATION OF THE UTERUS AND ITS ALTERNATIVES.

By G. Ernest Herman, M.B., F.R.C.P., F.R.C.S.,

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(*Abstract.*)

The author distinguishes four classes of cases in which ventral fixation is useful.

1. Retroflexion without appreciable descent, but with tenderness of the uterine body, not relieved by mechanical support. In these ventral fixation, Alexander's operation and vaginal fixation are equally effective; but ventral fixation is to be preferred.

2. Adherent retroflexion of the uterus with tenderness. Here ventral fixation is the only treatment so far as the displacement is concerned. But it must be advised cautiously (*a*) because the tenderness may be due to the condition of the peritoneum; (*b*) because many of these patients are neurasthenic, and from either of these causes the operation may not be an immediate therapeutic success; (*c*) because in these cases it is more dangerous.

3. Retroflexion without tenderness of the uterus, but with descent. Here ventral fixation is the only effective surgical treatment. But mechanical support if effective is to be preferred. Many of these patients are neurasthenic; and for that reason the immediate result of the operation may be therapeutically a failure.

4. Prolapse of uterus and vagina. Here ventral fixation is therapeutically a failure unless accompanied with elytrorrhaphy. *Plus* elytrorrhaphy it is successful.

The author considers ventral fixation less dangerous than Alexander's operation, and more surely permanent than vaginal fixation. He considers the objections to ventral fixation, which are: the dangers of sepsis, peritonitis from tension of the peritoneum, pulmonary embolism, parametritis, suppuration in suture tracts, tenderness of the scar, hernia, intestinal obstruction, difficulty and danger in subsequent labour. He thinks that if properly performed ventral fixation does not interfere with subsequent pregnancy or labour; and there is reason to think it may prevent miscarriage.

I HAVE undertaken to open this discussion because the secretaries asked me to do so, not because I have any novelty to bring forward. The operation has now become one frequently performed, but its proper place among therapeutic agencies has never been discussed in this Society. Therefore it seemed to the secretaries, and I agreed with them, that it would be a good thing that it should be the subject of discussion.

It seems to me to be unnecessary to discuss whether ventral fixation will remove the symptoms caused by retroflexion of the uterus. Everyone who has had any experience of the operation knows that it will. The question is not whether ventral fixation is effective, but whether in every case it is the best thing.

It is so simple an operation that when performed upon a freely movable uterus it ought to have no mortality. The mortality that it has had comes either from the accidents that will happen when safety depends upon human agency or from the presence of some complicating condition.

I shall not discuss in detail the methods of performing the operation. The subject upon which I put before you my opinions, which, I hope, may elicit valuable results of the experiences of others, is the place of ventral fixation as a method of treatment.

Thirty years ago there were gynæcologists to be found who would attribute almost any symptom that a woman

might complain of to a displacement, and would treat what they thought was a displacement with a pessary. At the present day we hear of places where it is taught that pessaries ought to be discarded. A learned Edinburgh gynæcologist recently wrote a paper in which he compared the opinions of different writers on diseases of women as to the use of pessaries, and, having done this, he went to the principal instrument-maker's shop and asked if there was any falling off in the demand for pessaries. He was told that more and more were sold every year.

This is the first question for discussion: In what cases should we advise patients not to wear a pessary, but to submit to surgical treatment instead?

(*a*) There are some cases in which the answer is easy. There are cases in which with retroflexion there is great tenderness of the body of the uterus, arising, as I think, from congestion of the body of the uterus owing to compression of the veins against strong and tense utero-sacral ligaments. In these cases the patient suffers continuously from sacral and hypogastric pain, and intermittently from painful menstruation and dyspareunia. These cases do not form a larger proportion than one tenth of the cases in which the uterus is retroverted. In some of them no vaginal pessary will support the uterus in a position of anteversion, and unless this is done the patient is not relieved. In such cases I think surgical treatment ought to be advised. Although the patient's ailment is not in any way dangerous, yet the constant pain is enough to spoil her life, and it is well worth her while to submit to operation.

(*b*) There are cases which Mr. Lawson Tait in 1887 spoke of as "one of the most dreadful conditions that the gynæcologist has to deal with," language perhaps a little exaggerated. These are cases in which the uterus is fixed by adhesions in a retroverted position and is very tender. In such cases the patient is often practically an invalid, and pessaries are no sort of use. Ventral fixation is here the only treatment that offers any hope of success.

But it is unwise to be in such cases too confident of cure; First, because it is difficult to say whether the pain is due to the retroversion or to the condition of the pelvic peritoneum. Secondly, because such patients are often neurasthenic; and if the pain be of a neurasthenic kind, operation will not quickly cure it. Thirdly, because the presence of adhesions which have to be broken down and will bleed increases the danger of the operation.

(*c*) There are cases, the majority of cases of retroversion, in which the uterus, although fallen backwards, is not congested. The folds of peritoneum which bound Douglas's pouch are so shaped that they do not compress the veins by which the blood from the uterus is returned. The displacement only causes symptoms because it is associated with slight descent. There is sacral and lower abdominal bearing-down pain, and often irritation of bladder. These symptoms are not severe, but they keep the patient in constant discomfort. The uterus is not tender, and therefore the pressure of any kind of pessary is tolerated. In most cases a pessary will give nearly complete relief; in a few a pessary will give complete relief; in a few others the state of the vagina is such that it is not possible to find a pessary that will stay in position.

When a pessary will give relief, either complete or practically complete—that is, that the pain becomes only slight and occasional—I think the patient should be advised to be content with the pessary. The only drawback of wearing a properly fitting pessary is the necessity of going to a doctor every few months for examination and cleansing. In many cases, after the pessary has been worn for two or three years, the patient is able to do without it: when she goes without it either the displacement does not return, or if it does, the symptoms do not; the years of support by the pessary have enabled the pelvic floor to regain its normal tone. Put against this the accompaniments of an operation: there is a little risk to life, certain possible remote risks, about which we

know very little—I mean of hernia, intestinal obstruction, etc.—in any case, three weeks' confinement. I think this is a more serious infliction than a visit to a doctor three or four times a year.

But if a patient is in continual discomfort all the time she is standing, and mechanical support fails to relieve her, then, I think, it is proper to resort to surgery.

But in these cases we ought not to fly to surgery without remembering that there are means of support which can be used in the most lax vaginas; I mean the different kinds of pessary that are kept up by straps attached to a waist-belt—Cutter's, and the various forms of cup and stem pessary. Patients differ much in their degrees of satisfaction with these supports. There are fastidious patients to whom the use of these pessaries is extremely repugnant. There are others who either do not object to them or prefer them to an operation. Whether one of these pessaries should be worn seems to me entirely a question for the patient. But I think the medical man ought not to press surgery on this class of patient without mentioning that there are other means of relief.

Supposing, now, that it is settled that relief is to be given by an operation; the question is, what operation? In the class of case that I first described—that is, a uterus retroflexed and very tender, without appreciable prolapse—there are three operations either of which will lift up the body of the uterus so that its veins are no longer pressed upon, and the patient's symptoms are at once relieved. These are ventral fixation, Alexander's operation, and vaginal fixation. If there is no prolapse, and the cause of suffering is the tenderness of the uterine body, these three operations are all equally efficient in relieving the patient.

In the second class of case, those in which the uterus is fixed in the position of retroversion by adhesions, there is no choice. Ventral fixation is the only efficient treatment. The round ligaments will not stand the pulling necessary to break down adhesions. Few persons possess fingers so

long that they can hook them over the fundus uteri from the anterior vaginal fornix and break down adhesions behind it; beside which the abdominal route is that by which the condition of the tubes and ovaries is best ascertained.

In the third class of cases, those in which there is no tenderness of the body of the uterus, the symptoms are those of descent, and operation is indicated because mechanical support is not satisfactory, there is also, in my opinion, no choice. Alexander's operation will not cure these cases. A weak, aching pelvic floor remains weak and aching whether the uterus be turned forwards or backwards. The only difference after operation is in the position of the uterus; the symptoms remain the same. This sentence applies also to vaginal fixation. Ventral fixation lifts up the uterus, and to a small extent pulls up the pelvic floor. If there is no prolapse of the vagina, ventral fixation will cure descent of the uterus.

But these cases in which, with nothing more than slight descent, relief of symptoms is anxiously demanded, are very often neurasthenic. Some of them can be cured by rest, without either pessary or operation. The enforced rest after ventral fixation is an excellent opportunity for treating the neurasthenia. If this opportunity is neglected, and the patient is allowed to continue living in circumstances unfavourable to her nervous health, the operation will be therapeutically a failure whatever its effect on the position of the uterus.

As there are cases in which we have a choice of operations, though these cases are few, we must consider their advantages and disadvantages.

Alexander's operation was introduced at the time when the methods of procuring asepsis by antiseptics were less perfect than they are now, when the fact that the peritoneal cavity was opened in an operation introduced additional danger, and when it was in consequence supposed to be an advantage of Alexander's operation that the position of the uterus was corrected without opening the peritoneal cavity. But at the present time whether the peritoneal cavity is

opened or not is hardly a thing to be taken into account. I think Alexander's operation a more dangerous operation than ventral fixation. I have published a case, and seen another, which proved fatal by suppurative inflammation within the pelvis along the track of the ligaments, extending to the peritoneum. It may be said that such a result indicates only imperfect antisepsis, and is a reflection on the operator, and not on the operation. But I think not, for in these cases the inguinal wounds, the only parts with which the operator's fingers and instruments had come into contact, had healed by first intention. I attribute the result to detachment of the ligaments from their vascular supply—for the round ligaments, like the ureters, are very little vascular. I have seen a case in which inguinal hernia followed the operation. This, I grant, is the fault of the operator, in not properly sewing up the inguinal canal. In one case in my experience one ligament broke off, and the uterus had to be left supported by one round ligament only. I know not how the operator could have prevented this. I may add that this case was therapeutically a complete success. I have heard of other mishaps, such as failure to find the ligaments, and division of the epigastric artery. I have seen statements in American literature implying that the number of unpublished cases in which the termination of the case was not that desired by the operator is considerable. And unfortunate results of Alexander's operation do not invariably imply surgical incompetence; for among those who have told me of such results in their practice was the late Mr. Lawson Tait. But be the results what they may, I have not for years performed the operation, and do not intend to do it again.

Methods of shortening the round ligaments by different modes of intra-peritoneal stitching have been devised. I have had no experience of them, and do not feel tempted to try them. I can perceive no way in which the result of any method of shortening the round ligaments can be superior to that of ventral fixation, and the objections to

ventral fixation apply equally, it seems to me, to intra-peritoneal shortening of the round ligaments.

The therapeutic results of *vaginal fixation* are much the same as those that can be attained by Alexander's operation. In retroflexion, with great tenderness of the body of the uterus but no symptoms of descent, vaginal fixation is successful in relieving the patient. But where the symptoms are wholly or partly due to descent vaginal fixation will not cure them. If the pelvic floor is weak, a change in the position of the uterus will not make it strong. It is claimed as an advantage of this operation that it leaves no scar in the abdominal wall. But a small scar in the abdominal wall, if the muscles and fasciæ are properly sewn together, is no great matter. The cases in which vaginal fixation may be expected to be successful occur especially in unmarried women, and in them vaginal fixation involves destruction of the virginal characters of the vaginal orifice. This may sometimes be thought a greater detriment than a scar in the abdominal wall. Vaginal fixation is a simple operation, simpler than Alexander's operation, and it is difficult to see why, with proper asepsis, any misfortune should arise from it. My own doubt about this operation is as to the permanence of the result. I have sewn a uterus into a position of anteversion, and years afterwards have found the uterus not, indeed, retroverted again, but less anteverted than it was immediately after the operation. The vesico-uterine cellular tissue is very loose, and, as vaginal fixation practically consists in tying the uterus to this tissue, I think we cannot be very surprised if in time this tissue should stretch.

In prolapse we have a different state of things to deal with. We must recognise that to the patient the only thing that matters is that she has a local condition that causes uncomfortable sensations. She knows not where her womb is, and is quite indifferent as to its whereabouts. The uncomfortable sensations are due to weakness or injury of the pelvic floor. Now, in great prolapse the changes in the pelvic floor are too extensive to be appreciably

altered by fixing the uterus to the abdominal wall. If for prolapse ventral fixation alone is done, the invariable result, in my experience, is that within a few months the patient either comes back or goes to another surgeon, complaining that the womb comes down as badly as ever. When she is examined it is found that there is no prolapse of the uterus, but there is prolapse of the vagina. Cystocele and rectocele remain practically unaffected by ventral fixation of the uterus.

To be of use in prolapse ventral fixation must be combined with an operation to narrow the lower part of the vagina so that prolapse of the vagina may be prevented. If combined with such an operation, ventral fixation is efficient in the cure of prolapse. Elytrorrhaphy alone will not cure prolapse, because then the uterus comes down and bulges open the contracted vaginal orifice, but if this is prevented by tying up the uterus to the abdominal wall the result of elytrorrhaphy will be lasting.

The subject of our discussion is ventral fixation, and not the treatment of prolapse, and, therefore, I refrain from discussing other methods of treating prolapse. But I may be allowed to say that I think that in elderly widows the best treatment of prolapse is the removal of the uterus *and* vagina, and that in younger women I think the most hopeful treatment will be found in Hey Groves's operation for the repair of the levator ani muscle. But there has not yet been time for that operation to be sufficiently tested.

It is necessary now to consider the objections to ventral fixation. These are:

First, the immediate danger, the risk of septic infection, the risk of putting tension on the peritoneum. These ought to be prevented.

Second, the risk of hernia. Hofmeier mentions a case.* This, I think, can be prevented by careful suture of muscles and fasciæ.

* 'Zeit. für Geb. und Gyn.,' Band lv.

Third, the risk of pulmonary embolism. I know not why this accident should follow ventral fixation; but Weindler* has mentioned a case in which death took place on the thirteenth day after the operation from this cause.

Fourth, I find four cases recorded of death due to obstruction of bowel by bands passing from the uterus to the abdominal wall long after the operation. I find other cases in which in pulling tight the sutures bowel was nipped between the uterus and abdominal wall, and the abdomen had to be reopened to relieve obstruction thus caused.†

The last-mentioned accident surely may be prevented by proper care in the performance of the operation. As to obstruction by bands, we know that adhesions of peritoneum to peritoneum are often absorbed, and that they stretch. If, therefore, in ventral fixation the peritoneal surface of the uterus is stitched to the parietal peritoneum of the abdominal wall it is not surprising that the adhesion should stretch and possibly in time be absorbed.

If the adhesion should elongate into a band, then there will be danger of obstruction some day arising. But when peritoneum is stitched to muscle, as in colotomy, the adhesion neither stretches nor is absorbed. I think, therefore, that in performing ventral fixation the parietal peritoneum should be separated from the muscle and the uterus stitched to muscle.

Fifth, Weindler states that he has once seen parametritis follow ventral fixation.

Sixth, suppuration has taken place along the suture tracks. These sequelæ are not of ultimate importance, but they delay convalescence.

Seventh, in one case I found the scar remain painful and tender for many weeks after the operation, although there had been no suppuration or other hindrance to

* 'Monatschrift für Geb. und Gyn.,' Band xxi, pp. 754 and 777.

† Seegert, 'Zeit. für Geb. und Gyn.,' Band lv.

recovery. To lessen dragging on the adhesion I inserted a Hodge's pessary, which the patient wore for three months. At the end of that time all pain and tenderness had gone; the pessary was removed, and the patient remained perfectly well. I have seen the same thing mentioned by others.

Eighth, the possible dangers incident to subsequent pregnancy and labour. This requires careful consideration.

Fortunately we have data for forming a judgment in an excellent paper laboriously compiled by Dr. Russell Andrews. In that paper he has collected and analysed 395 cases, a larger number than has been collected by any previous investigator. A few more cases of pregnancy and labour following ventral fixation of the uterus have been published since, in a paper by Seegert.*

The first thing to be remarked is, that in the great majority even of these cases labour was normal. I say "even of these," because Andrews remarks that many of them were published because they were instances of successful obstetric operations, and, therefore, interesting cases.

Abortion occurred in 9 per cent. Now, the average frequency of abortion as compared with labour at term is as one to five, or 20 per cent. If these figures represent the usual result, we must conclude that ventral fixation prevents abortion rather than favours it. It is clear that the operation does not cause abortion. In nine cases labour came on prematurely, a number so small that we can say that ventral fixation does not cause premature labour. In twelve cases there was some trouble—pain or functional disturbance—during pregnancy. The number is small; and when we remember that a considerable proportion of the patients in whom displacements give such trouble that operations are demanded are neurasthenic, it is not surprising to find some of them still complaining of pain. The fact that only twelve of them

* 'Zeit. für Geb. und Gyn.,' Band lv.

did so shows that pain in pregnancy is not an effect of ventral fixation.

Andrews finds that, according to published reports of cases, high position of the cervix causes the most common difficulty in labour after ventral fixation. This difficulty was met with in 22 cases out of 395, a small number after all—only 5·5 per cent. But when we look into these cases, some of them are very hard to understand. In one of them the difficulty clearly was only in the mind of the accoucheur; for while he was getting ready to perform Cæsarean section the patient was naturally delivered. There are three in which the os uteri is said to have been opposite the first or second lumbar vertebra—that is, near the middle of the kidneys and the diaphragm. Without the records of these cases I think one would have said that it was impossible so to fix the uterus that the cervix should be as high as this. In another case the cervix is said to have been so high that Champetier's bag could not be inserted, but the os uteri was manually dilated. It is not clear to me why it was necessary to dilate the cervix at all, and I cannot understand a condition in which the operator could get his hand in, but not Champetier's bag.

When I read these records I cannot help being reminded of cases in which the deviation from the normal position of the body and the cervix uteri is much greater than that produced by ventral fixation, viz. cases of retroflexion of the gravid uterus persisting to full term. Many of these cases have ended fatally in consequence of the doctor's endeavours to effect in some artificial way the delivery which he imagined could not take place naturally, while in those that have been let alone natural delivery has always taken place. When I read these cases in which dilatation of the cervix, turning, or Cæsarean section were done because the cervix was high up, and it was assumed that, therefore, it would not dilate, I cannot help coming to the opinion that in most of them the only cause for interference was that the accoucheur was in a hurry. I cannot understand why tying up the fundus should

prevent dilatation of the cervix. It may prevent or make difficult the engagement of the head in the brim, but the dilatation of the cervix depends not on this.

The cases collected by Andrews include ten transverse presentations. According to the average frequency there should have been two. If the cervix is so much displaced as to hinder the engagement of the head in the brim, a transverse presentation is a probable result, and an increased frequency of transverse presentations is thus explicable.

The most serious point in Andrews's collection of cases is that three ruptures of the uterus occurred. In one of these no less than fourteen stitches had been put in, so the fixing must have been extensive. In another intra-abdominal shortening of the round ligaments had also been done. These three ruptures of the uterus may be only a fortuitous sequel, but it is also possible that a too extensive fixation, by preventing regular expansion of the uterus, may make it more liable to give way at a part on which undue tension is thrown.

Andrews's conclusion is that broad and dense adhesions are those that give trouble, and that there is less likelihood of trouble if the anterior wall is the part fixed. I think we should rather say, the anterior part of the fundus. These conclusions seem to me in harmony with the evidence.

In brief, my conclusions are these: That ventral fixation is the best mode of relieving symptoms caused by retroversion or retroflexion of the uterus when the result of mechanical support is not satisfactory. That, combined with elytrorrhaphy, but not without it, ventral fixation is an efficient treatment of prolapse. That if the operation is properly performed subsequent difficulty in labour need not be feared.

By "properly performed" I mean that the anterior half of the fundus uteri is stitched to the muscle about halfway between the symphysis pubis and the umbilicus. I see no advantage in trying to pull the uterus up to the umbilicus, or tying it down immediately above the pubes,

or sewing its whole anterior surface to the abdominal wall. Most persons who disapprove of the operation appear to me to be influenced by the observation of cases in which the operation has been done for the relief of neurasthenic symptoms, and has therefore been a failure.

Dr. Peter Horrocks said he could agree with practically all that Dr. Herman had said, but probably he did not agree with him as to the number of cases that required ventral fixation of the uterus. The number had not been stated in the paper, but general rules had been given that where other measures, such as mechanical support, failed, then ventral fixation might be tried. He considered that this operation was resorted to far too often, partly because sufficient time and skill were not spent in trying to remedy the condition, and partly because some men recommended and performed the operation without trying the effect of mechanical support at all. Twice during the past twelve months he had saved two patients from this operation and had relieved all their symptoms by means of the simple measure of a mechanical support. So seldom, indeed, did he fail to give relief that he had not found it necessary to resort to ventral fixation a dozen times altogether. Some men did hundreds of cases, and he could not help feeling that the great majority of them might be relieved in other, less risky, ways. Dr. Herman had detailed a long list of the dangers and risks attending the operation. He should like to point out that, in addition to these, even where the uterus was well fixed to the abdominal wall it was an unnatural position; the uterus normally was swung on a line and had considerable mobility, especially up and down. Now, this operation destroyed that mobility altogether unless the operation was badly done. He related details of a case where the wound had suppurated, so that the scar thinned out, leaving nothing but a little skin attached over the adherent uterus. The patient could not bear the pressure even of the clothes, and therefore he had removed all the old scar, liberated the uterus, and given her a new scar. In another case, where the ventral fixation had been done extremely well so far as holding on was concerned, the patient became pregnant. On examination he found the os uteri looking directly backwards towards the promontory of the sacrum, but thinking this would probably right itself sufficiently for natural delivery, he allowed her to go to full time. When labour set in the os uteri dilated, but it looked directly backwards and could not be brought down at all, so that he was obliged to do Cæsarean section. Mother and child did well, but he took the opportunity of cutting through the adhesions which bound the uterus to the abdominal wall, and he was astonished to find how firm and fibrous they were. In

addition, he had had some six cases in which ventral fixation had been done by different operators, and which had been successful so far as fixing the uterus was concerned, but where the patients had not been cured, and had, in addition to their old complaint, an added one—namely a pain, attributed to the scar, due, no doubt, to the dragging of the adherent uterus. The operation was actually fatal in some cases, whereas the mechanical measures were without danger. In the cases where the uterus was not held down by adhesions nearly all could be restored without operation, and where there were adhesions preventing restoration the operation, as Dr. Herman had pointed out, became much more difficult and dangerous. In one such case, where he had failed to relieve, he did consent at last to do a ventral fixation, but on opening the abdomen it was found that the uterus was bound down by adhesions, and the pelvic peritoneum was covered with miliary tubercles, a few of which only were removed for microscopic purposes, no attempt being made to alter the position of the uterus. The patient did well, and apparently got cured of the tubercle. He considered that ventral fixation was an operation only to be resorted to in a few cases when all other measures had failed.

Dr. Galabin said that he agreed with a large part of what Dr. Herman had said as to the scope of the operations of ventral fixation. But Dr. Herman had dismissed very briefly an alternative operation, which he regarded as preferable in some of the classes of cases referred to—namely intra-peritoneal shortening of the round ligaments. He thought this an excellent operation for obstinate cases of retroflexion associated with only slight or moderate degrees of prolapse, especially where future pregnancies were probable. Dr. Herman had not mentioned the total percentage of complications in pregnancy or labour following ventral fixations, but there was no doubt that many had been recorded, and not all of the operations performed could be ascribed to the undue haste of the operator. Ventral fixations so interfered with the natural freedom of the fundus to rise in pregnancy that it was surprising that the uterus could get itself free as much as it did, and that pain in pregnancy, if nothing worse, was not more frequent than it appeared to be. Intra-peritoneal shortening of the round ligaments was free from these objections. As compared with Alexander's operation, it was not liable to the criticisms on that operation justly made by Dr. Herman. There was no fear of the round ligaments not being found, of their tearing, or being too weak, or of their nutrition being interfered with. The operator could see exactly how much shortening was needed to draw the fundus forward to any desired degree. The peritoneum and cellular tissue covering the round ligaments added strength to the shortening, whereas in Alexander's operation these are puckered up and tend to stretch the ligaments

out again. Further, unexpected adhesions, tethering the uterus backward, might be discovered and separated. If pregnancy followed, the rest of the round ligament could hypertrophy sufficiently to allow the uterus to rise, and there were no inconveniencies, such as the unnatural fixation of the fundus might cause, apart from pregnancy. After pregnancy it was, no doubt, possible that the ligaments might remain so much lengthened that displacement would recur, but he had not yet met with that result. For extreme and obstinate degrees of prolapse he agreed with Dr. Herman that ventral fixation combined with elytrorrhaphy was the most effective operation, but he considered even this not always infallible. He had had a patient who had undergone five elytrorrhaphies, the last combined with a ventral fixation by another surgeon. After a year or two he found the cervix again prolapsed externally. He opened the abdomen again, thinking that the union had separated or stretched, but found the fundus firmly fixed up to the abdominal wall, the uterine cavity having simply lengthened out through the tension. He closed the abdomen and did a sixth elytrorrhaphy, but after another year or so prolapse had again recurred. Opening the abdomen again, he found the union now lengthened out to a band four or five inches long. He then removed the whole uterus and stitched together the broad ligaments to form a band across the pelvis. The vaginal prolapse did not afterwards recur. Dr. Herman had advised removal of the whole uterus and vagina for prolapse in elderly widows. He thought there was a preferable alternative in these cases—namely, Lefort's operation, in which a median septum is made so as to form an artificially double vagina. This was a much less severe operation, and he had not yet met with any case of recurrence of prolapse after it. Either side of the vagina was said to be sufficient for marital purposes, but he had not himself operated on patients in whom this was likely to be put to the test. In cases of retroflexion without much prolapse and without adhesion he thought that an operation was very rarely necessary, and that skill and perseverance with pessaries would almost always give relief. In performing ventral fixations where future pregnancy was probable he always avoided putting stitches much above the middle of the body of the uterus. He might have thought, with Dr. Herman, that complications in pregnancy or parturition depended on some defect in the mode of operating but for the case on which he had operated. The immediate result was satisfactory, but the patient went to South Africa and there became pregnant. For some reason, presumably on account of pain, it was thought necessary to induce abortion. From this time the patient was said to have suffered from incurable incontinence of urine.

Dr. Heywood Smith drew attention to the change that had come over the profession with regard to that operation during

the last twenty or thirty years. It was at the Hospital for Women that the operation was performed *ad hoc*, though doubtless it had constituted the finish of an occasional ovariotomy. The case on which he then operated was an unmarried woman with a large vagina and persistent retroflexion which had resisted all treatment with pessaries, as none could be got to fit. Afterwards he sent the case to one of the influential medical journals, and he was favoured with an annotation to the effect that although Dr. Smith claimed that as the first case of ventrofixation they sincerely hoped it would be the last, as nothing could justify such a serious operation for so unimportant a malady.

Dr. Russell Andrews said that Dr. Herman, in kindly quoting his paper on the effects of ventral fixation on subsequent pregnancy and labour, had drawn some conclusions which were hardly justifiable. So many writers on the subject had made no mention of miscarriages or pain during pregnancy that percentages were not of much value. Several observers (Olshausen, Sänger, etc.) had seen the first subsequent pregnancy end in abortion and the second go to term. He thought that Dr. Herman had made too little of the difficulties in labour. He quite agreed with Dr. Herman that in some cases labour might have terminated normally if the natural forces had been allowed longer time. In others, however, when the cervix, situated high up and far back, did not dilate in spite of good pains, or in which the anterior wall of the uterus constituted a large fixed pelvic tumour, he considered that the difficulties were very real. In these the fixation was too firm and unyielding. When writing the paper referred to he had not been able to find any cases recorded in which intestinal obstruction had resulted from ventral fixation. In the August number of the 'Zeitschrift für Geburtshülfe und Gynäkologie,' however, there were four such cases recorded, in three of which the intestinal obstruction seemed to be definitely due to the ventral fixation.

Dr. Blacker thought that the operation of ventral fixation was undoubtedly of value, but that the indications for its use must be strictly guarded and limited. He had performed it on twenty-two occasions, mainly for cases of severe prolapse. He had only once done the operation on a single woman, for marked prolapse of the uterus, no doubt due to congenital debility of the pelvic floor. He did not think the operation should be performed on any patient who was likely subsequently to become pregnant, not because of the danger of any complication of pregnancy or labour following it, but because in cases of prolapse, for which he had chiefly employed this method, the occurrence of a subsequent pregnancy was very likely to again damage the pelvic floor and so to produce a return of the prolapse. In such cases he combined with the operation of ventral

fixation that of colpoperineorraphy and often too that of amputation of the cervix. These three procedures together gave good results, and the class of patient in whom he recommended them was that of elderly women at or past the menopause who were not likely to have any further pregnancies and who were compelled to undertake hard work. In three of the fifteen cases in which he had performed ventro-fixation for prolapse he had also removed the whole or a portion of one of the ovaries for cystic changes. Of the remainder of the twenty-two cases in two the operation was performed as an adjunct to ovariotomy, in two cases for retroflexion and retroversion of the uterus, one partially fixed with adhesions about the left ovary, and the other a movable retroflexion with symptoms which had resisted all other treatment, and in three cases for painful backward displacement of the uterus combined with cystic changes in the ovaries. He certainly thought the operation was a good one, and that its chief indications lay in the treatment of cases of adherent retroflexions and in cases of bad prolapse in women who were not likely to again become pregnant. He had been much interested in what Dr. Herman had said about the after-results of Alexander's operation because he had recently seen a case in which, in the course of an operation for the radical cure of a hernia, as the patient had some tendency to relapse, the surgeon had drawn up and fixed in the wound the left round ligament. She subsequently became pregnant and throughout her pregnancy she complained from time to time of pain in the scar. When labour came on the cervix did not dilate, and the labour pains were mainly referred to the site of the scar. They caused a great deal of suffering and secondary uterine inertia resulted, necessitating the use of a Champetier de Ribes' bag to dilate the cervix and delivery with forceps. The patient had previously had three children, with easy labour and without any necessity for the use of instruments. Without doubt in this particular case the unilateral fixation of the round ligament was the cause of the extreme pain and the resulting prolongation of the first stage of labour for some thirty hours. The likelihood of any return of the prolapse in cases where this operation and colpoperineorraphy were done for the condition was much lessened by amputation of the cervix, but Dr. Blacker had seen a case in which the uterus, although it remained fixed to the abdominal wall, yet again prolapsed owing to the stretching of the abdominal wall, so that the patient presented a deep depression at the site of the scar at the bottom of which could be felt the fundus uteri whilst the cervix presented at the vulva. He had met with no complications in his twenty-two cases except that one patient developed a swollen leg, the remainder making uninterrupted recoveries.

Dr. Arnold Lea considered that the term "ventro-fixation"

should be restricted to cases uncomplicated by lesions of the tubes or ovaries, as in these the fixation of the uterus forwards was only a subsidiary part of the operation. Adhesions were rarely found in the absence of disease of the appendages. There is a small though real danger of intestinal obstruction following the operation. This might be produced by a coil of bowel slipping between the uterus and bladder, or, at a later period, by strangulation under peritoneal bands stretching between the uterus and the abdominal wall. Persistent abdominal pain and bladder symptoms following the operation were not always due to neurasthenia. In two cases he had subsequently reopened the abdomen and found extensive fibrous union between the uterus and abdominal wall. Separation of the adhesions had completely relieved the pain. It was essential that the fundus should be left free in patients who might subsequently become pregnant, otherwise the uterus developed at the expense of the posterior wall, which resulted in great difficulty during labour, and might lead to rupture of the uterus. In cases of obstinate retroflexion uncomplicated by adhesions, and in the absence of prolapse or enlargement of the uterus, intra-peritoneal shortening of the round ligaments, which were folded and sutured into the anterior uterine wall, was very efficient and avoided any risk during subsequent pregnancies.

Dr. HERMAN, in reply, said that he was glad to have heard Dr. Galabin's experience of intra-peritoneal shortening of the round ligaments. He had himself hitherto thought that when surgery was required ventral fixation was better, because retroflexion was so often associated with slight descent, which was remedied by ventral fixation, but not by shortening of the round ligaments. He was much interested in Dr. Griffith's case of sterility cured by ventral fixation. He had until now thought that the evidence that retroflexion produced sterility was defective, but Dr. Griffith's case was a fact in favour of that view. His experience as to tenderness of the uterus was different from that of Dr. Griffith. He found that in about one case of retroversion in ten the uterus was tender—that is, pressure upon it caused pain. That this pain was due to the uterus was shown by the fact that it was removed when the uterus was kept anteverted. In reply to Dr. Andrews, he said that when a case was published to show the effect of ventral fixation on pregnancy and labour, and neither abortion nor pain during pregnancy was mentioned, he thought it might fairly be inferred that neither of these misfortunes occurred. He thought that his conclusions on these points were justifiable, but he admitted that absence of contrary evidence did not amount to proof. As to the effect on pregnancy generally, he thought that when we found that after the operation delivery took place without difficulty in 94½ per cent. of cases we might safely conclude that the difficulty in the remaining 5½ per

cent. was not due to the operation as usually performed, but to some features special to each case, of which an unusual method of operating might be one. He agreed with speakers who said that cases in which the uterus was stitched to the abdominal wall after the removal of inflamed parts or tumours ought not to be described as cases of ventral fixation, for the fixation here was only an incident in a much graver operation.

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